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Interesting the Man Behind the Counter

By R. B. Willson

THE merchandise managers of food products for the big chain stores and wholesale grocers in New York have a reputation for being hard boiled. In reality they are not so much that as they are men of discernment. There are actually hundreds of propositions which come before them every week, and if they could not quickly sort the wheat from the chaff they would soon be swamped and bogged down. By selection, training and experience they are bright fellows and good business men with many important duties to be performed with dispatch. Disposing of matters quickly should not be confused with abruptness.

To us the honey business is all important. To them it is small and unimportant. To attract their attention and secure their cooperation in a plan to sell honey that does not involve paying something in cash or free goods is consequently not easy, but when even the simple plan which is described herewith was placed before them in a circular letter the response was immediate.

It is obvious to me that the constituent parts of the plan are old. In all probability many have done the same elsewhere, but even so the idea is still excellent and will be strengthened by repetition.

The plan took form one noon when I ate lunch in a combination lunch room and delicatessen store where our Golden Blossom honey was on sale. After eating I sought the proprietor and asked about the sale of our product. He complained that it was slow, although he used to sell much of it in a previous store. I noticed he had a fine display of grapefruit on hand and asked him if he had ever heard of sweetening grapefruit with honey. He said he had not. I told him about it.

Strawberries were then coming in and he had some nice ones. I asked him if he had ever tried strawberries

R. B. Willson is manager of honey sales for the John G. Paton Company, of New York City, one of the largest of the eastern concerns selling honey in the larger centers of population. His experience is wide and varied in that side of the honey business which must be emphasized to bring profit. Therefore it is with considerable respect that we present his idea, which is full of immediate value to all of those who sell honey. We consider it one of the best suggestions which have been made in a long time.

with honey and cream. He replied he had not.

I saw he had a large assortment of things with which fruit juices are made into delicious beverages. Had he ever heard of sweetening them with honey? No. I stepped behind the counter and picked up a box of Kellogg's Bran Flakes. Had he ever noticed the recommendation to eat this cereal with honey? No.

Up until that point he was respectfully interested, but not until the next point was scored had I done much good. One can tell, usually, when he is impressive.

Of course, he was selling sugar to all of his customers to sweeten these products? Oh, yes. And how much profit was he making on sugar? Why, none at all—no grocer ever made a profit on sugar. But here were four ways to use honey that were far more delicious and wholesome and there is a handsome profit on honey.

He saw daylight at once and I had made a honey salesman of him in less than five minutes. Incidentally, I had seen daylight myself. I had known for twenty-five years that grocers sold sugar at no profit (and I have learned recently that they are

sick of it), but I had never thought to capitalize on it. Two blocks away was the office of an important chain store customer of ours. I told the buyer there of my experience and suggested that the same message to each of their four hundred store managers would make real salesmen of them too. He took me to the merchandise manager. In five minutes the idea had been stretched into a letter for the store managers, because he was quick to see that here was an idea showing how profits could be made.

Next day, at the office, I made up a circular letter, the contents of which were directed to the men behind the counter. It was headed with the entreaty that they wake up to the profits in our honey. In the first paragraph, very brief, it was pointed out that certain products are made more delicious and wholesome when sweetened with honey. In the next paragraph, also brief, it was stated that the sugar sold to sweeten these products was sold without profit, and that by suggesting to their customers the following delicious combination they could substantially increase their own profits:

1. **Strawberries, Honey and Cream.** Strawberries sweetened with honey and served with cream are one of the most delicious desserts you can imagine. The idea later can be used with peaches.

2. **Grapefruit and Honey.** Grapefruit cored and sweetened with a tablespoonful of honey and put in the icebox the night before serving for breakfast is grapefruit at its very best. So when you pick up a grapefruit think of sweetening it with honey.

3. **Childrens' Cereal Sweetened with Honey.** For wholesomeness, deliciousness, and body-building qualities, honey is the best sweet for all cereals for children, and grown-ups too.

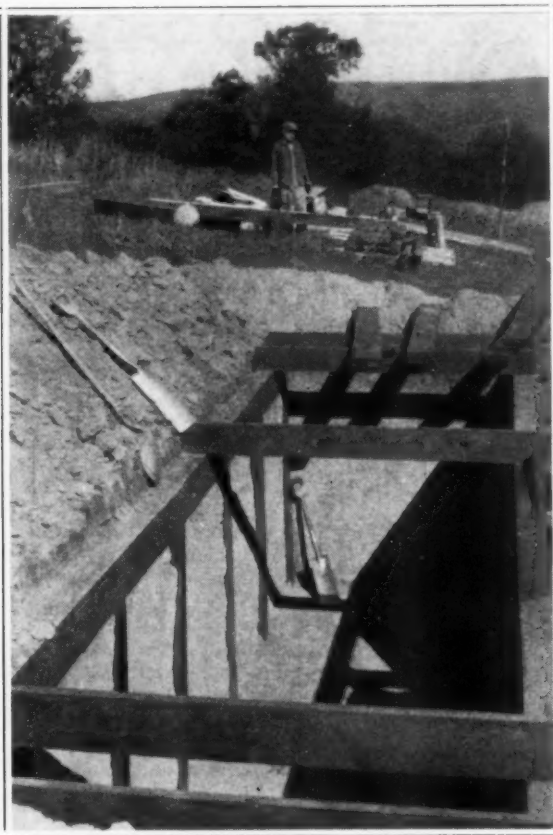
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Cellar Wintering of Bees in North Dakota

By C. S. Engle



The cellar dug and partly built

AFTER reading the report of Prof. J. A. Munro, head of the beekeeping department in the North Dakota Agriculture College, published in the North and South Dakota Horticulture, December, 1930, I realize that many consider the wintering of bees a serious problem in North Dakota. In 1929 Prof. Munro sent out one hundred eighteen questionnaires to North Dakota beekeepers relative to wintering and other phases of beekeeping. Sixty-eight questionnaires were filled out, in part at least, and returned to Prof. Munro.

Of the sixty-eight beekeepers who reported, fifty-six wintered their bees in cellars, while seven packed their bees out of doors and one packed his bees in a building above ground. Dates for putting bees into cellars ranged from November 1 to December 20, and the six who packed bees gave dates for packing from October 15 to 20. Forty-seven reported on winter losses ranging from nothing to 40 per cent on cellar wintered bees, and six stated that losses on packed bees were from nothing to 50 per cent. The average cellar loss was 4.17 per cent and average loss reported on bees wintered outdoors

was 26.16 per cent. Twelve beekeepers reported a loss in weight, while the bees were in cellars, of eight to twenty-five pounds, or an average of fifteen and one-quarter pounds. Those who mentioned the most serious difficulties encountered in wintering in cellars reported as follows: Sixteen mentioned high temperatures, eight lack of stores, seven too much moisture and mold; seven stated that they had no difficulties; six considered the disturbance of the bees by mice, skunks or other cause the most serious; three mentioned dysentery, three lack of cellar ventilation, and two had greatest difficulty in keeping cellar temperature high enough. Two who wintered bees outdoors mentioned snow and ice blocking entrances. One reported that queenlessness was his greatest problem; one said he had trouble on account of leaving his bees out too long (November 30), while one said that he put his bees in too soon (November 5). Then there was one who reported trouble on account of snow and ice getting into his cellar ventilators and stopping them up, and one other said that his greatest trouble was caused because he had

put his bees out to early, cold weather had chilled the brood. After reading this report one is apt to conclude that the problem of wintering bees in North Dakota is similar to wintering problems in other northern states.

Most of the North Dakota beekeepers, with whom I am acquainted, use the ten-frame hives and winter their bees in two hive bodies, because a single brood chamber rarely ever contains stores enough to carry an average colony through the long winter and spring. I find that the Modified Dadant brood chamber has to be well filled with honey in order to furnish the average sized colony with sufficient stores; such a hive in proper shape for wintering weighs about one hundred pounds, while the two-story, ten-frame hive weighs about one hundred thirty-five pounds. Of course, such hives are bulky and difficult to carry into the cellar.

I prefer to put the bees into the cellars around November 1, or as near that date as possible, after the bees have had one or more cleansing flights. After the bees have had such a flight it is not necessary to wait for cold weather before putting them away. Last fall the cellar wintered bees were put into the cellars the third week in October, during a mild spell of weather, after having had opportunities to fly each day for a week. Under such conditions the bees were not clustered tightly and would fly out unless properly handled. A few puffs of cool smoke into the entrance of each hive before removing the entrance guard and the bees remained in the hives while being carried into the cellars. Unless the bees become too warm in the cellars and have to be set out early, or must be put out and fed, they are usually left in until the latter part of March, or when the first pollen is available.

Bees are successfully wintered in this state in different types of cellars. My own cellars are dug deeper than some of those used by successful beekeepers, and have more insulation over the tops. I intend to have the cellars insulated well enough so that any sudden outside change in temperature will have little effect on the inside temperature. I also supply more ventilation than formerly, but do not leave all ventilators open during the coldest weather. I rarely ever have trouble on account of the cellars becoming too cold, but have had trouble because they got too warm. Cellars that are too warm usually contain too many colonies of bees. The bees apparently winter best when the cellar temperature stands around 40 to 44 degrees.



Load from yards ready for placing in cellar

The accompanying pictures show the type of cellar that I use. These cellars are what I consider to be the proper size for wintering one hundred colonies in Modified Dadant hives and are thirty-two feet long, seven feet wide and seven feet high, inside measurements. As these cellars are dug where the drainage is good, they remain dry and I have not had to wall up the sides. About one foot of well trodden flax straw is put on top of the cellar sheathing, then a foot of earth, another layer of straw and enough earth to cover it well. The large rear ventilator is two feet wide, four feet long and seven feet tall, and was put in after the cellar had been used one season. This large ventilator I patterned after some that J. D. Beals has recently added to his cellars. With all the ventilators open and the inner and outer doors partly opened, there seems to be sufficient ventilation for one hundred colonies during warm spells of weather in later winter.

Fargo, N. D., Feb. 11, 1931.

Give Beekeeping a Chance, Not a Subsidy

By M. N. Dillon

THE time was when apiary inspection was regarded as an imposition by most Michigan beekeepers. Today in Michigan probably 90 per cent of our honey is produced by beekeepers who regard inspection, including burning, as absolutely essential to the industry.

Our county association last year assessed its members 10 cents per colony to help pay for inspection. This year, when state funds are curtailed, our inspector tells me individuals are paying him to inspect their bees and their neighbors' bees.

The fact that bees are "ferae natural" makes the beekeeper more at the mercy of his neighbor than any other agricultural producer.

At present, state and county apiary inspection is a form of state aid to

the beekeeping industry. We go cringing before our county supervisors or legislative committees asking for a subsidy. They high hat us, talk about "the people's munny," lecture us on economy and lay the matter on the table.

At our recent county beekeepers' meeting, with about fifty beekeepers present, a canvass showed 50 per cent were not taxed for bees at all. The other 50 per cent were assessed at \$2.00 to \$9.00—obviously unfair. Would it not be better to tax each hive so much and then give the beekeeper something for his money?

If the majority of beekeepers want inspection, why not give it to them and let them pay for it? If they do not want it, let it be abolished, but treat everyone alike.

I am told that with the start we have here in Michigan in combating disease we could probably continue state-wide inspection for 10 cents per colony a year. Why not exempt bees from property tax and require a permit to keep them and make that permit cost 10 cents per colony per year, and make it a misdemeanor to keep bees without a permit, the same as it is to move bees or keep bees in

cross-comb hives. This permit fee would then be available to support. The inspection force could check the bees against the permit and cause the arrest of anyone violating the law as they now enforce the law against cross combs.

There are many details that would have to be worked out, but with the principle of treating all alike and letting them pay for the service they get, there should be no difficulty. The burden would naturally fall heaviest on the large producer, who would benefit most. We must quit treating beekeeping as a fad or a plaything and regard it as the business it is rapidly becoming. Give beekeeping a chance, not a subsidy.

Michigan

Idaho Conditions Normal

Conditions in Idaho are reported normal this year, according to Harry Newberry, of Filer, president of the Idaho Honey Producers' Association. The California crop is estimated at one-third the usual amount, and the drouth in the Midwest has affected production there, all of which offers a better market for Idaho honey than usual.

The volume of honey in the United States is lower than it has been for twelve years.

Beekeepers in Idaho, from Hagerman Valley on west to Minidoka, plan to meet in the Twin Falls County fair grounds at Filer to discuss the honey situation in the state. Mr. Newberry, C. H. Stinson, of Twin Falls, and others will be on hand.

North Carolina Crop Reported Excellent

According to a news letter of the North Carolina Beekeepers' Association, issued by F. B. Meacham, the honey crop of North Carolina seems to have been good to excellent in most all parts of the state.



This is the way to carry them in



More Facts About Fireblight Needed

If the conclusions from the work in Arkansas as reported by Dr. Rosen are not final, and further investigations show bees not to be a factor in the spread of fireblight, as has been claimed by other investigators, it is those facts we must have. Beekeepers should take the initiative in obtaining investigations on fireblight from the standpoint of the bee. The work in Arkansas does not prove that the honeybee is the prime factor. It only assumes that it could be. They do not show how important a factor the honeybee is in the spread of blight nor that the bee is the actual spreader.

In the editorial in the July number commenting on "Bees and Fireblight," a statement from a California report about the failure of Mr. L. M. Smith to show any relation between the distribution of blight and any particular kind of insect shows that not all the facts about fireblight are known. Considerable work is being done in California now by Mr. Smith, Mr. Ark, and Professor Day, and from preliminary reports on these blight investigations it is very evident that too much is yet unknown to accept the conclusions by Dr. Rosen as final.

Bees, along with other insects, it seems, can carry blight organisms from one blossom to another. How is it carried to the first infected blossoms? Does it overwinter in the hive? Bees do not visit the cankers from which the blight spreads. Several other insects do visit the cankers, and the blossoms also.

So we conclude that Dr. Rosen's work is not the last word. We certainly hope that the new Bee Culture Field Station at Davis, California will interest itself in this subject from the standpoint of the beekeeper and that they will closely observe the work now being done in California.

It seems to us that this new field station can do such work in connection with the study of the pollination problem, as the two subjects are so closely related.

Watson Test for Carnauba Wax Checked By Department of Agriculture

In our March number, 1930, Dr. Lloyd R. Watson reported his newly devised test for beeswax to determine admixture of carnauba wax, under the title "The Detection of Carnauba Wax in Beeswax."

In the present number Mr. W. F. Baughman, of the Oil, Fat and Wax Laboratory, and Mr. G. L. Keenan, of the Food and Drug Administration, under the able direction of Dr. G. S. Jamieson, of the Bureau of Chemistry, United States Department of Agriculture, give us their findings on this same subject. We feel complimented in having been offered this article for publication.

It should be a matter of great satisfaction to Dr. Watson to have his work checked and the important part of it confirmed by such high authority. Coming from the Bureau of Chemistry and Soils and the Food and Drug Administration of the United States Department of Agriculture, the Watson method can now be widely adopted in determining the presence of carnauba wax in beeswax.

The present work confirms especially the qualitative determination as originally devised by Dr. Watson. In his endeavor to work out a quantitative analysis, Dr. Watson did not have the facilities possessed by the Bureau. It is to be hoped that an accurate quantitative table will be worked out at some time in the future so that buyers of such mixtures may know how far removed from purity each lot of beeswax is. Although the photographs of the crystals of both pure and mixed wax, as taken by Dr. Watson and the Bureau, were secured with entirely different procedure, it is interesting to see how

closely the pictures resemble each other in their peculiar crystal characters.

It is significant to note that by the use of this method it is possible to detect the presence of as little as .3 of 1 per cent of carnauba in beeswax. If the purity of beeswax is to be maintained, it is apparently not safe to mix even a small proportion of adulterated wax combs with beeswax combs. For instance, a comb containing 3 per cent of carnauba wax, if rendered with nine combs of beeswax, will produce a mixture that would be readily detected as an adulteration by means of the Watson test.

There is a decided lack of demand for wax mixtures when they are honestly offered as such. This results in a depreciation in the price of the beekeepers' product. A still further danger, as we see it, is that beeswax mixed with vegetable wax is likely to be made into foundation for section comb honey or for chunk honey. This would be a violation of the pure food and drug act, according to the Food and Drug Administration.

However, the trouble that would result from such violation would be insignificant when compared with the damage to the entire honey industry if the public were to learn that our choicest product, comb honey, was being adulterated.

Exhibits at Fairs

August is the month of fairs, and our beekeepers should bear this in mind and exhibit their honey, if they wish to push the sale of it. We found that the operation of extracting honey before the crowds that visit a fair is very beneficial and profitable. Very few of the people who are not acquainted with beekeeping know what honey extracting means. We have often met people who thought that the words "extracted honey" meant "extract of honey." It is necessary to explain to them that removing the honey from the combs and returning them to the hive to be filled again is an economical operation because of the cost of combs to the bees. It takes quite a little effort on the part of the exhibitor to give the public a clear understanding of the matter, but when they understand it they become greatly interested in honey. When we exhibited at the State Fair, we had our extractor located a little below the level of the ground, so that passers-by could easily see the details of the extraction of honey, the uncapping, the revolving of the combs in the extracting cage and the throwing out of the honey. People who had mistrusted honey in the liquid state became at once enthusiastic purchasers of the product.

It is also at such a time that housekeepers may be made acquainted with the granulation of honey and the ways to liquefy it, in case they do not want it in that state. A very good housekeeper informed us that she had had extracted honey in her pantry, but "it turned to sugar," she said with repugnance, "and I had to throw it away."

When people are better acquainted with the facts about honey, there will be ten times the sale for it that exists now.

Granulation of honey is a well known fact in Europe, but in this country, until the custom of extracting became popular, the people who wanted honey out of the combs had no other method than to melt it over a fire. Such honey as this "strained honey" never granulated. That is why so few people know what granulated honey is. Many are likely to believe that sugar is contained in it; some even go so far as to believe that it is only sugar syrup.

The beekeeper who exhibits in a fair and who takes the trouble to explain the facts to the public earns a well deserved reputation and increases the sale of his product many times, for if we can only convince the public that

our honey is really the true product of the flowers, gathered by the bees, there will be no end to the sales at paying prices. Sugar is cheap, but it can never compare with honey as a sweet.

Rearing Young Queens

August is the month in which it is best to supersede our old queens. At this time there is but little need of increasing the population, and if young queens are reared before September they will have ample time to breed a hive full of bees for the winter. The careful beekeeper has noted his best queens, and it is from them that he rears his young queens, thereby improving his stock of bees to the utmost. Better rear our own queens than take chances on unknown stock.

Big Candy Sale

The statement is going the rounds of the press that the American public consumed last year an average of twelve and a half pounds of candy for every man, woman and child. In view of the high quality and superior flavor of honey, there is something wrong with us if we have trouble in selling one-fourth that amount of our product.

Requeening

When prices are low it is even more important to watch the leaks than when prices are high. Failing queens result in the loss of the crop from too many colonies. Queens are very low in price this season and improved stock can be secured at small cost. Requeening should be attended to before the close of the honeyflow.

Watch Honeydew

There are far more reports of honeydew this year than usual. In some regions large quantities have been stored. It is important for the beekeeper to guard against mixing this undesirable product with his good honey, since it greatly reduces the price in the market. It is also important that it be removed from the hives before the season is over, since it is dangerous to attempt to winter the bees on honeydew stores. Honeydew sells slowly and at unsatisfactory prices, but there are some markets which will take it. Baking companies and chewing tobacco firms can make use of it.

America vs. Europe

It seems that the beekeepers of America and Europe have less in common than is desirable. It is due to the difference in conditions under which we work. In America most well informed beekeepers are specialists who devote their attention to honey production as a commercial venture, primarily as a source of livelihood. In Europe there are thousands of keenly interested persons who have only a few colonies of bees which they cultivate for the love of them. These beekeepers are interested in every angle of beekeeping, every scientific development and every phase of bee behaviour. In America we have thousands of small beekeepers who own but a few colonies, which too often are neglected and whose owners are profoundly ignorant concerning them. It would be greatly to the advantage of the industry if we had a much larger number of the kind which are so numerous abroad.

In a few localities we have groups of well informed persons who are interested in bees as a diversion, and to these small groups we owe much of the progress which we are making. May their numbers increase. To them we owe the leadership which secures funds to combat disease, and to them we owe much of the enthusiasm which stimulates the public interest and expands our markets.

Waxmoths

This is the season when damage from waxmoth is serious. In every large apiary there is frequent cause to regret careless exposure of combs. A super of empty combs or a hive body with brood combs not in use is

likely to be riddled by the moths before the beekeeper realizes their presence. The losses from moths run into large figures every year simply because of neglect. In the northern states the insects stop work as soon as nights become cold, but in the South the damage is likely to occur at almost any season.

It is only necessary to keep the combs on the hives of strong colonies of bees to avoid such damage. Where it is necessary to store unused combs in warm weather, they should be fumigated to kill any moth that may be present and then kept in tight containers which will not permit them to enter.

Caucasians or Italians

In the new yearbook of the U. S. Department of Agriculture is an interesting article on the races of bees by W. J. Nolan. He comments on the fact that the Caucasian has a longer tongue than other races. This fact makes the Caucasian more useful in the pollination of red clover than Italians or blacks, but Nolan concludes that the Italian is best adapted to the needs of American beekeepers as a whole. While there are vigorous champions of Caucasians and Carniolans, the fact that so many beekeepers favor the Italians indicates that under average conditions they meet requirements best.

Perhaps others may prefer the Italians for the same reason often expressed by the editor of this magazine—because the markings make it much easier to recognize mismatings.

Apiary Waste

Comment has been made by a correspondent on the vast waste among American beekeepers through the use of poor equipment. Well made hives with good frames of correct size are a good investment. Once combs are built they can be exchanged from hive to hive and used anywhere as needed. One who has served in the inspection service is amazed to find the extent of the use of makeshift hives and frames. Such equipment may save the expense of good equipment at the start, but it costs far more in the end through the inability to give proper attention to the bees.

Poor combs waste space in the hive, and waste the time of the bees through the rearing of too many drones when worker brood should be raised. The waste continues through the harvesting of a small amount of surplus where a good yield should be secured.

Poor stock wastes the time of the beekeeper and results in the discomfort of unnecessary stings. Good hives, good combs and good stock pay. It pays in the saving of time, in the harvesting of larger crops and in the satisfaction of having things done right. The well equipped beekeeper actually gets more cash at the end of the season for the labor expended, and, after all, that is the final test.

What Advertising Will Do

The best example of the results of advertising is the great expansion of the tobacco industry. One would not have believed it possible to increase the use of any product, much less tobacco, to such an extent as recently published figures indicate. An official publication of the Canadian Government shows that the use of cigarettes is increasing the revenue of the tobacco industry in that country by many millions of dollars each year. The present consumption of tobacco in Canada is given as more than \$85,000,000. When we remember that in the average family there will be several members who do not use tobacco, the actual bills of the users must be getting rather heavy.

If tobacco can be sold to the public by advertising, how much more readily should it be possible to sell a product like honey, which has no objectionable qualities? As one beekeeper wrote us recently, "Selling is the big problem; everything else is secondary." We must learn from those who have succeeded, and there is nothing to take the place of advertising in the present day.

A Great Home Economics Convention and What It Teaches Us

By Malitta D. Fischer, Honey Specialist, American Honey Institute

THE twenty-fourth annual convention of the American Home Economics Association in Detroit, June 22 to 27, at Book-Cadillac Hotel, was one of the best on record. The attendance was about 1700, exceeding by more than 400 any previous registration. More than forty exhibits by the leading food, textile and equipment companies as well as Government departments were represented.

The Institute booth was again arranged through the cooperation and courtesy of the Kellogg Company, who invited us to display jars of honey and sections of comb honey wrapped in cellophane on the shelves, which were also amply stocked with Kellogg's cereals. The Kellogg Company paid the rates, and all the Institute had to do was to set up the honey and provide a representative to be in the booth and meet the home economics people who visited and registered for material.

Through arrangement made by Prof. Russell H. Kelty, two Michigan beekeepers provided honey for display and for the complimentary packages given out. Beekeepers all over the country shared in the benefits.

All of us are grateful to M. H. Hunt & Son, of Lansing, Michigan, for furnishing the glass jars, and to Mr. and Mrs. Davis, of Birmingham, Michigan, for honey and for filling the jars.

All during the day and at such time in the evening as the exhibit hall was open, one of the Kellogg Home Economics assistants and the Institute representative were in the booth. Teachers, home demonstration agents, dietitians, physicians, nurses, food specialists and home makers stopped, talked about cereals and honey, and registered for material for class and demonstration use. Many women in allied food industries were interested in the many times that honey recipes had been included in their local as well as state publications of the past year. Many of them heard Dr. Barnard on "The White House Conference on Child Health and Protection" and they were the more readily convinced that honey should be included in their nutritional recommendations when they learned that the Dr. Barnard directing the child health program was the same Dr. Barnard sponsoring the American Honey Institute program.

The writer concentrated more or less on National Honey Week with the thought of interesting these women, many of whom might give their first demonstration of honey during that week this fall.

The booth registrations totaled 532, about 35 per cent of the total. Convention experts and sponsors consider 15 to 20 per cent very good and 10 per cent the average. It covered thirty-six states and three foreign countries, as follows: Alabama 3, Arkansas 2, Arizona 1, California 5, Connecticut 2, Delaware 1, Florida 2, Georgia 6, Indiana 15, Idaho 1, Iowa 12, Illinois 44, Kansas 7, Kentucky 5, Louisiana 2, Maine 2, Maryland 1, Massachusetts 1, Michigan 248, Missouri 12, Nebraska 6, North Carolina 2, New Hampshire 1, New York 18, Ohio 51, Oklahoma 2, Pennsylvania 25, South Dakota 2, South Carolina 1, Tennessee 5, Texas 5, Washington, D. C., 5, West Virginia 1, Wisconsin 14, Wyoming 3, Australia 1, Canada 10, New Zealand 1.

The following list will show you the great variety of industries represented:

American Bemberg Corporation, American Dietetic Association, American Glass Association, Inc., American Stove Company, Borden Company, Celanese Corporation, Chemical Catalog Company, Child Study Association, Conover Company, Corning Glass Works, R. B. Davis Company, Detroit City Gas Company, Durene Association of America, Electromaster, Inc., Evaporated Milk Association, General Electric Company, General Foods Corporation, Gerber Products Division, Hoover Company, Horlick's Malted Milk Corporation, Jackson & Jackson, John F. Jelke Company, The Junkett folks, Kellogg-Institute, Kelvinator Sales Corporation, Kitchen Aid Manufacturing Company, Kraft-Phenix Cheese Corporation, Ladies' Home Journal, McCormick & Co., Inc., The Manual Arts Press, Meredith Publishing Company, Metropolitan Life Insurance Company, Practical Home Economics, Proctor & Gamble Co., Quaker Oats Company, Ralston Purina Company, Singer Sewing Machine Company, Spool Cotton Company, Standard Brands, Inc., The Survey, Syracuse Washing Machine Corporation, Virginia Dare Extract Company, Warren Featherbone Company, Wesson Oil and Snowdrift Sales Company, and William E. Wright & Sons Co.

Home Economics in Business

One entire morning was devoted to round table discussions by the home economic women in business. They brought out that one of the major results the home economist is getting for her company is REDUCTION OF SALES RESISTANCE. The home economist is making a tremendous effort to get consumer view-

point to find out what Mrs. Homemaker wants as well as to determine what is best for Mrs. Homemaker. The home economist in business is much more concerned than most of us realize in finding facts and interpreting these facts into financial value for her organization. Little do we realize the good will such women develop.

These women are not concerned in just measuring their results by good will and fellowship, but they are business-like enough in their pursuits to have obtained figures to show that their departments are financial assets. They are not contented with their present knowledge, but are anxious to better themselves for the best interests of their company. Some of them are still studying such subjects as economics, public speaking, typewriting, and advertising. Practical things, are they not?

In fact, one of the home economists for a large organization issued a challenge to home economics women in business to study economics this year so that next year they may have an open discussion on how their group can help improve the economics of their industries.

You will wonder what application this has on beekeeping and honey. The greatest in the world if we can but get the right perspective. **Reduction of sales resistance**—isn't that our greatest problem?

If the home economist secures a reduction of sales resistance for her organization, can you not understand how beneficial she will be if she participates in our honey program? It is easy to understand why Dr. Barnard, when he first organized American Honey Institute, directed almost his entire effort and attention to the home economics women? That's the reason the American Honey Institute's program the past year has been devoted to local home economics programs and why the Institute has tried so hard to get beekeepers to work with home economic teachers, demonstration agents and home service directors.

In his more than thirty years of food work, Dr. Barnard has kept in touch with home economics workers, has missed very few of their national conventions, and I understand now, after attending three of them, why Dr. Barnard has always insisted that I make their conventions if no others could be made.

Now, through the assistance of Dr. Barnard, Mary I. Barber of Kellogg Company and Joan Rock, your secretary has been accepted as a member



Kellogg Institute Booth at Home Economics Convention

of the home economics business section of the American Home Economics Association. And after my first attendance at their sessions, I want you to believe with me that in the home economist's educational program of the **REDUCTION OF SALES RESISTANCE** we have to a large extent the solution of our difficulty.

Don't misunderstand me. There are any number of factors that we must solve before this can be accomplished even by the home economist, and perhaps the greatest of these is a standardization of packaging and uniformity of flavor. But these will come, and while we are directing our efforts in this connection, why not travel with the home economist?

Again, do not think that I am saying we must have all clover honey and no other. We will always have a variety of flavors, but for general consumption, based on the recipes we suggest, it is necessary that the blend of honey be a mild one for general family use.

Time and again I meet housewives who say they are fond of frozen honey fruit puddings and honey cakes and honey iced punches, but the ones they made did not taste like mine. Upon investigation the difference was found to be in the flavor of honey. For fruits and general family service I find the milder honeys or blends of honey universal in flavor satisfaction. Home economists are interested in the many flavors of honey, but they must be practical in their family food suggestions, and they have told me many times that if they could always get a mild honey it would be easier for them to help us carry on the honey program.

You will be interested to know

that the June number of *Timely Topics* (the official publication of the home economics in business section) carries a membership list. But 358 women in the United States and Canada have been admitted to this section and are carrying on in an educational way the matter of the application of home economics to business programs.

The final session of this group was an unusual luncheon at the Detroit Yacht Club arranged through the courtesy of two Detroit home economic leaders in business, Marion Sawyer, of Kelvinator Corporation, and Dorothy Knight Hassler, publicity program. Home Economic Women in Business eagerly anticipate their annual luncheons, for one of the outstanding pleasures is the favor boxes they receive. Companies send all sorts of clever favors, and when they are collected they usually require a good sized box to hold them. This year the boxes were larger than a shoe box—in fact about twice the size of an average shoe box and a little deeper. Ornaments, miniature ice tongs, pictures, sacks of flour, trays, extracts, booklets, sets of recipe cards, pads, pencils, all bearing advertising of the respective companies, were found in the box.

But that's not all. American Honey Institute was represented too. Not in the ordinary manner of little jars of honey, but in a package that served as an example of how honey could be used—confections wrapped in cellophane. The Dupont Cellophane Company had their special representative from New York stop at Indianapolis to help work out the wrapper for this package, and they furnished their moisture proof cello-

phane in pieces properly cut and the special solution for sealing.

Also, had it not been for the co-operation of the Kitchen Aid Company, Troy, Ohio, we would never have been able to make enough candy pieces and cake squares for these packages. The Kitchen Aid Company rushed over a KITCHENAID with proper attachments, so that in a short time fudge batter for the cake squares was prepared and dipping chocolate melted down for the hand dipping of the hundreds of honey centers which resulted in the pieces for these packages. If you could only have seen the packages you would have been as thrilled as we were. Each package contained: 1 Honey Cream Mint Center Chocolate Coated, 1 Honey Pecan Cream Center, 3 Orange Strips Coated, 1 Honey Krisp Center Chocolate Coated, 1 Honey Fudge All Bran Square.

Multiply that number by 162 and you will get some idea of the number of these favors which were included in the boxes as compliments of the American Honey Institute.

Later, for the holiday season, we hope to give you an actual picture of these packages so you can make them up. Every piece was made with honey—no sugar at all.

At this luncheon the home economic women were children again. Really, the honey package was the only one that contained something that could be eaten as it was—it did not require mixing, cooking, baking or diluting. It was amazing after a heavy luncheon to see the number of packages that were opened and the candy eaten. The women seemed surprised and continually commented on the delicious flavor the honey imparted. Many of them ate portions of their candy packages before the food service was completed.

Don't you think all of this activity will stimulate those women to use more honey? Don't you think these women, once they become honey conscious, are in splendid positions to stimulate others to use honey?

How to Get a Colony to Rear Good Queens

Go to a very good colony, take away the queen and use her as you like. Leave the colony queenless six days, when queen-cells will have been started.

At the end of the six days take all the brood, queen-cells and all, away from the colony. They will then want a queen so badly that they will be willing to give cells the best attention.

Then give back grafted cells to this colony containing larvae from the queen you wish to use as a breeder. This colony will rear a nice lot of cells. Try this if you do not believe me.

Rowlett Alsobrook,
Tennessee.



By N. N. Dodge

Demonstration of Pollination

Mr. C. A. Heskett, extension agent of Fremont County, Colorado, arranged five demonstrations in various portions of the county to determine the value of bees as aids in pollination of fruit blossoms. Morgan Shaefter placed sixty colonies of bees in a forty-acre orchard and Perlie Kelley put one hundred colonies in a ten-acre orchard tract. A number of colonies of bees were obtained from Mr. F. L. Doering, of Canon City. Mr. E. E. Kissinger reported gratifying results from the use of bees in his orchards during the spring of 1930 and again this year.

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Wettest June Since 1917

Beekeepers of western Washington report the wettest June since 1917. Fireweed was in bloom at the lower altitudes, beekeepers in these districts losing approximately two weeks of nectar gathering due to the rainy weather. The moisture was received with rejoicing by beekeepers having high altitude fireweed locations, because of the stimulating effect upon the plants, which were then in the bud stage. Mr. Frank Ross, of Puyallup, reports that the nectar flow from raspberry was practically over before the coming of the wet spell and that the bees gathered a normal surplus from this source. The rain, however, interfered to some extent with the bees working on blackberries.

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Drought in Idaho

Drouth conditions in Idaho have become so serious that a series of recommendations for water control have been issued by M. R. Kulp, irrigationist at the University of Idaho. In orchard districts about Lewiston irrigation will be limited to one acre foot during the season. Alfalfa blossoms furnish the bulk of the nectar in many districts in Idaho, and beekeepers are worried over the prospects of a shortage of irrigation water which is so necessary for the growth of this valuable honey plant.

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Low Prices

Honey prices in the Seattle, Washington, trade area are reported to be the lowest in the memory of beekeepers in this section. One chain store and several of the public markets have retailed five-pound pails at 39 cents, and comb honey, 1930 crop,

has been retailing at two sections for 25 cents.

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Fruit Growers May Study Pollination

Mr. Floyd Buck, recently elected vice-president of the American Honey Producers' League, reports that a strong movement is on foot to organize the fruit growers of the Yakima and Wenatchee valleys of central Washington for the purpose of making a careful study of production costs and methods. Efforts will be made to lower costs of production through increasing yields and perfecting more efficient methods of pruning and spraying. Mr. Buck, who has been assisting in the work of organization, expressed the opinion that the growers would make a careful study of the work of bees in pollenizing fruit blossoms and would attempt to perfect a spray which would control codling moth larvae without the disastrous effect upon bees of the sprays now used.

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Honey on Tables of Northwest

Mr. H. B. Preston, of Keene, New Hampshire, who attended the National Council of Congregational Churches convention in Seattle early in July, stated that he particularly noted the presence of honey in lunch rooms, cafes and dining cars throughout the Northwest, in contrast to its absence in these places in the other parts of the country through which he passed en route to Seattle.

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Warren A. Miller Passes On

In the death of Mr. Warren A. Miller, of Puyallup, Washington, on May 14, western Washington beekeepers lost a staunch friend of the beekeeping profession and the honey industry. As president of the Citizens State Bank of Puyallup, and for many years treasurer of the Puyallup Chamber of Commerce and also treasurer of the western Washington Fair Association, Mr. Miller was in a position to be of great value to beekeepers. Mr. Frank Ross, superintendent of the bee and honey department of the western Washington Fair, said of Mr. Miller:

"Mr. Miller had been keeping bees in a small way for the last ten or twelve years. He took it up, as so many do, as an avocation to rid his mind of the worries connected with the bank. His health was none too

good and the bees proved a godsend to him, for one did not know the man Miller until he had been in the bee yard with him. Then he lived the life he loved. Mr. Miller had been quite actively engaged in bees for the last eight or nine years and at the time of his death was running about four hundred colonies. His partner, Mr. George Mayo, will continue the business. It is needless to say that Mr. Miller has given the entire weight of his influence to assisting the beekeepers. He served two terms as president of the Pierce County Beekeepers' Association and has at all times been ready and willing to help at the meetings or be of service to the industry especially in regard to the bee and honey exhibits at the fair."

Had Mr. Miller lived, he would have celebrated his sixty-first birthday on May 22.

More About the Glass Container

By Wilbur Sharon

A few months ago an article of mine was published in the American Bee Journal in which I described my success in packing honey in the square, clear, half-gallon Mason jar with gold-lacquered, paper-lined lid.

At that time I pointed out the fact that honey weighing twelve pounds to the gallon was not quite suited for the half-gallon can because the standardized five-pound quantity did not fill the jar to capacity. This extra space at the top of the can made rather an unsightly appearance, but in spite of this fact not a single customer found objection to it on this account.

Since that article appeared, the retail price of honey, along with other commodities, has taken a drop. At least that is the situation in my locality. Most honey producers around here have brought the price of their five-pound tin pail from one dollar down to seventy-five cents. I did not do this. I just finished filling the half-gallon can to capacity and gave six pounds for a dollar. I thereby not only moved more honey, but I also kept the dollar package popular. Incidentally I got almost two cents more on the pound than did the others.

I have bought back many of these containers at five cents—about a cent and a half less than factory price—which has meant a small saving to me and also helped to reduce the cost of the honey to the consumer. This was an added satisfaction to many customers and a convenience to me, for I shall not be compelled this year to make a big outlay for containers before starting to move the new crop.

Prepare for Winter in August

In the north central states, August is the time to prepare bees for wintering. For best success, three conditions are essential: First, there must be in every hive a good young queen to insure young bees that will live over winter. Second, there should be a hive full of bees, not only to gather whatever fall nectar that may be available, but also to generate and retain the heat of the colony throughout the cold season. Third, there should be a sufficient amount of honey in the hive to guard against any shortage of food that might occur.

The beekeeper who expects successful wintering of his bees should at this time go through every hive, carefully noting the condition of brood and stores, supplying any deficiency, doubling up all weak colonies and dispensing with all queens more than a year old. While it is sometimes true that a two-year-old queen will do fairly well in her third year, it more often happens that her colony becomes queenless before the next season's honeyflow, or even in the preceding fall or winter. It would seem that what is termed "spring dwindling" is due to very old bees being wintered over, the result of an old or failing queen not supplying a sufficient number of young bees the previous fall. On the whole, it doesn't pay to try to winter any colony not in prime condition. Furthermore, a colony strong and vigorous in August will, in many localities, store a considerable surplus in addition to its winter food supply.

E. S. Miller, Indiana.

Texas Crop Largest on Record

Following a statewide survey, H. B. Parks, superintendent of the State Bee Laboratory, estimates the 1931 crop at 6,250,000 pounds, the largest on record.

Parks recently made a trip to the winter garden section of Texas and other parts of south Texas, where most honey is produced, and found the crop about 25 per cent above normal. In north Texas the conditions are about normal.

The crop this year will be sold largely through the State Honey Producers' Association, organized last March under the Federal Farm Board under the direction of H. E. Coffey, with C. H. Steele, of San Antonio, as president.

There is a notable increase in the number of small farm colonies in the trucking and fruit growing areas of Texas, due to the fact that the farmers have found the bees a great aid in the set of fruit and vegetables.

Will H. Mayes.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

FEEDING SUGAR SYRUP

I have a few swarms of bees and the weather is rainy so that they can't work, and if I keep any next year I must feed for winter. Will you give me complete directions for feeding sugar? I have a little last year's honey, clover and basswood, but not enough to feed as many as I want to winter. Will bees winter well on dandelion honey?
WISCONSIN.

Answer—It is too early to say that the bees will not make any honey for winter. But if you must feed, use two measures of good granulated sugar to one measure of water, boiling water preferable. Add about 10 per cent of honey. If you do not have honey, add one teaspoonful of tartaric acid for every twenty-five pounds of sugar used.

Feed in cans or jars turned bottom up, with a cloth tied over the mouth of the jar. Some people use perforated lids. The feed is given right over the center of the brood combs.

Dandelion honey is all right for bee feed. We rarely have it, however.

LENGTHEN QUEENLESSNESS

I have a colony of bees that has been queenless one month. What ought I to do with them? They have plenty of honey and are in good shape so far as stores are concerned. If I introduce a queen at this late hour, could I induce them to rear bees enough to go through the winter, or had I better unite them with another colony? I have a late swarm that has a good queen and is short of stores. Ought I to unite them together? If so, how must I go at it? Or ought I to take the queen from the weakling and introduce her?
KENTUCKY.

Answer—In your case it would probably be best to join the two colonies together. Feed both colonies, so they will be in good spirits. Then cage the queen of the small colony and put her between two of the center combs of the queenless colony. Then shake all the bees of that late swarm in front of the other hive some time in the evening, so as to lose less bees. If many bees go back to the old spot, they may be gathered on a comb and given to the other colony the next morning. If that late swarm is stronger in field bees than the other colony, perhaps you had best put them all on the stand of that late swarm.

The queen should be released at the end of two days. It might be all right not to cage her at all, but there is some risk to run.

Another good way, after putting the queen in the queenless colony, is to place the late swarm, hive, combs and all, right over the top of the queenless one, with a newspaper between the two stories.

REQUEENING

Eleven days ago I introduced three new queens, following the instructions contained on the package. I did not have an opportunity to inspect the hives for about ten days, at which time two of the queens were released, but the third was not.

1. How long may a queen be left confined in the cage? Should one assist the bees by digging out some of the candy?

2. When is the proper time to requeen?
MINNESOTA.

Answer—1. A queen may remain caged a long time, but it is not very good for them, as it is likely to make them more sluggish in egg laying after they are released. Usually the bees eat up the candy to release them

quite promptly, but perhaps in your case it was either too hard or too thick. It is only necessary to keep the queen within the cage until the bees are quiet and fairly well acquainted with her. So you might remove a portion of the candy.

2. The proper time to requeen is whenever you have good queens on hand to replace the old ones. If you rear them yourself, you will probably find the months of August and September the best to do requeening. You must have the new queen on hand before killing the old one.

TO PREVENT GRANULATION

Would like to ask you some questions in regard to heating honey so it won't sugar again.
WISCONSIN.

Answer—We do not aim to heat honey to keep it from granulating, because we consider the granulating of honey as a quality. In many countries they will not accept honey unless it is granulated in winter, because practically all good honey granulates. The trouble in this country is that they used to get honey from bee trees and had to heat it to strain it out of the rotten wood that fell in it.

Heat it as soon as you like, after extracting it, but do not heat it beyond 145 degrees. It will evaporate a certain amount of moisture and will not be likely to granulate. Some kinds of honey granulate more readily than others, and for that reason it is hard to tell how long to heat it to keep it from ever granulating again.

Heat it over hot water (au bain-marie). Cool it as soon as possible after heating it thoroughly, but you may expect it to be darker in color after heating. The longer it remains hot, the longer it will stay liquid, but the darker it will become. Fall honey granulates very slowly.

MOTHS IN SUPERS

1. I would like to know what is the best thing to do with comb honey in the supers that the moth millers have gotten in and laid eggs after being stored in the honey house? Also, extracting honey in the brood frames?

2. I am going to put up some extracted honey in those one-quart E. Z. Carry jars. What do you think is a fair price to ask each for these jars to consumer, grocer and retailer? As this is the first honey I have extracted to sell, I don't know much about it.

3. I know extracted honey should be different prices, according to the way it is packed and sold.

My honey so far to date this year is nice and white.
ILLINOIS.

Answer—1. If that comb honey has many moths in it, we can see no way to do except to return it to the bees. Perhaps it is not too late to do it now. If there is only an occasional moth burrow in it, you may be able to sell it by removing the moths. You should always keep honey away from the danger of moths, and a honey house should be so bee tight and moth tight that honey will run no risk in it.

2. Those easy-carry quart jars of honey should sell for about 70 cents at retail. Give the grocer 20 per cent from this price.

3. Yes, there should be a wide difference between the retail price and the wholesale price of any size of package. For instance,

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A Summary of Facts About the Use of Formaldehyde in the Apiary

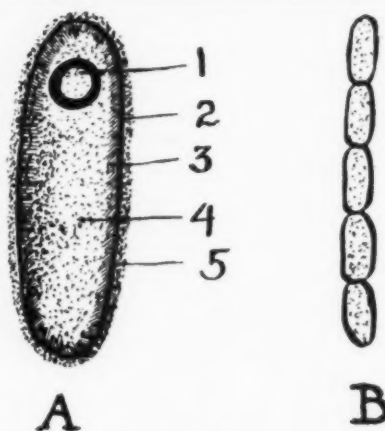
By George Zebrowski

THE writer has followed with interest the discussion concerning formaldehyde and its use in disinfecting brood combs. While the discussion has been prolonged for several months, no general agreement has yet been reached, some individuals claiming success in its use, others voicing decided objections. The writer has successfully used formaldehyde in his own apiary, but cannot recommend generally satisfactory results to others, unless the procedures outlined below are carefully followed. A knowledge of the composition and properties of formaldehyde is essential to a better understanding of its use.

As our use of this disinfectant has for its purpose the destruction of the foulbrood germs, let us first consider how this, or any germicide, acts on these organisms.

In America there exist two serious bacillary diseases of bees, namely, the American and European foulbroods, caused respectively by *Bacillus larvæ* and *Bacillus pluton*. The American foulbrood bacillus is spore-bearing. Figure A of our sketch will show briefly its structure and appearance. This organism is technically a bacterium, of which there are three kinds, based on structural appearance. Thus, rod-shaped bacteria are bacilli; spherical bacilli are termed cocci, and bent rod-shaped (corkscrew) bacilli are spirilla. All bacteria, commonly called germs, are unicellular fungi, thus belonging to the plant kingdom. Unlike higher plants, however, they are unable to make their own foods, thus being dependent on food materials already prepared. For this reason we find them in foods such as honey, milk, cheese, etc. Bacteria, however, do not restrict themselves to such foods, but also inhabit plant and animal tissues. Such human diseases as tuberculosis and typhoid fever are caused by bacilli. Disease-producing organisms of this kind are termed pathogenic, and there are hundreds of different species. Another characteristic of bacteria is that they are everywhere. They swarm in myriads in the soil; they are in the food we eat and the water we drink; they have even been collected with an airplane twelve thousand feet above the earth's surface, where they were carried by the wind. It is obvious that organisms so well distributed and so numerous—there may be several thousand in a single drop of milk—require an exacting technique for their control. Bacteriology is the science which deals with the

The author, as a biologist and a student of parasites and their control, has an approach to the use of formaldehyde in the apiary which we do not ordinarily enjoy. His review should be useful, as it calls all the main facts together as far as his experience goes.



Explanation of Diagram

- A. A spore-bearing bacillus.
 1. Thick-walled spore.
 2. Water film adhering to cell wall.
 3. Coagulated layer of cytoplasm.
 4. Cytoplasm.
 5. Cell wall.
- B. Non-spore-bearing bacilli showing method of growth.

study of bacteria, and the writer would recommend the perusal of any standard bacteriological text to him who would can foods or deal intelligently with plant or animal diseases.

In addition to the above bacillary diseases, bees frequently suffer from infection of molds and yeasts. These are likewise low forms of plant life which, like the bacteria, are unable to make their own foods and are dependent upon other food sources already prepared. To give moldy combs to bees is to invite infection of the colony.

The above discussion should emphasize one thing, and that is the complex problem which confronts the beekeeper in trying to eliminate foulbrood. He must always keep in mind the nature of the disease-producing organism and also the effect of the chemicals with which he deals.

The actual destruction of bacteria is usually effected in one of three ways: By solidification of the gelatinous cytoplasm (coagulation); by contraction and collapse of the cell contents due to loss of water by osmotic action (plasmolysis); or by ejection of the cell protoplasm

through bursting of the cell wall (plasmolysis). We do not have time to describe the physiological details of all these methods, but will merely add that all germicidal procedures involve the operation of one or more of these methods.

When the housewife preserves canned produce by means of brine or sugar syrup, she is simply bringing into play one of the above methods, namely, plasmolysis, in which procedure the water is extracted from the bacteria, molds or yeasts that may be present, thus causing collapse of their cell cytoplasm and destroying them. Honey acts in the same way. One may ask why it is that honey does not destroy the foulbrood bacillus. The answer is that it usually does. But this bacillus being spore-bearing, the spores escape the plasmolytic process and thus survive to develop in a more favorable environment, namely, in the bodies of the bee larvæ to which this honey is fed. The spores of these lower plants bear the same relation to them as seeds do to higher plants, and show similarly the same or greater resistance. Thus a higher plant will be destroyed while its seeds survive the freezing of winter. For this reason molds, yeasts or bacteria may be destroyed by heat or fumigation while their spores escape the destructive process. Therefore, to eliminate foulbrood it is necessary to destroy the spores, a decidedly difficult procedure, and it is to bring about this destruction that recourse is had to such germicidal agents as formaldehyde.

The destructive action of this chemical on microorganisms depends on a number of factors, such as its concentration, the temperature, length of contact, resistance of the organism, and the accompanying moisture. Primarily this substance brings about the destruction by coagulating the cell contents, very much after the fashion of heat coagulation of an egg. The formaldehyde penetrates the bacterial wall and combines chemically with the cell contents, rendering them insoluble and thus terminating their life activities. As the coagulated layer of cytoplasm thickens, it offers continually greater resistance to further penetration of the chemical, so that the process is slowed up and must be given proportionately greater time to prove effective. A glance at Figure A shows the thick-walled spore contained within the cell cytoplasm, so that to effect its destruction prolonged exposure to the germi-

cidal agent is necessary. These spores are so resistant in some cases that one or more hours of boiling will not destroy them. We thus see that not only must formaldehyde be in intimate contact with the bacterium, but that this contact must be prolonged for a long time to be effective. An exposure of many hours is indicated.

Pure formaldehyde is a colorless gas which has little or no germicidal effect in the dry state. For commercial purposes it is prepared by being dissolved in water containing some methyl (wood) alcohol, the resulting solution being termed formalin. This usually has a strength of about 40 per cent by weight. Since, then, formaldehyde is inactive in the dry state, it follows that it must be in solution and in intimate contact with the microorganisms before it can effect their destruction. When used in the gaseous state, provision must be made to generate water vapor at the same time. This water vapor forms a film about the individual cells of the microorganisms. It is in this film of water that formaldehyde then dissolves and brings about its lethal effect.

The simplest method of using formaldehyde in the above form is to pour commercial formalin upon small crystals of potassium permanganate contained in a large metallic vessel. A vigorous reaction takes place with the evolution of heat, that causes most of the solution to vaporize and fill the space with formaldehyde gas and water vapor. Dry formaldehyde candles frequently sold for this purpose are of little value unless water vapor is generated at the same time. The proportions usually recommended for this purpose are 500 c. c. of formaldehyde solution and 237 grams of potassium permanganate to each 1,000 cubic feet of space.

Having considered the effects of formaldehyde, let us examine briefly some of its properties. Chemically each molecule of the gas consists of one carbon, two hydrogen and one oxygen atoms. It belongs to a group of substances known as aldehydes. The aldehydes are derived from alcohols and are usually named after them. They also take the name of the acids to which they give rise on oxidation. Formaldehyde is obtained by oxidizing methyl alcohol, and may in turn be converted by oxidation to formic acid. It is therefore known as meth(yl)aldehyde or form(ic)aldehyde, for brevity, the syllables in brackets being omitted. We cannot dwell too long on this phase of the subject, but we must consider one interesting property of formaldehyde which is important in our discussion. The writer has reference to the interesting phenomenon of

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from the Little Blue Kitchen

I saw a gay little honeybee
Sailing along so peacefully,
I thought "What a sweet little thing is he!"
One day in August!

I sat on a poor little honeybee,
But I didn't stay "sot," oh my, oh me!
For that little bee had a stingeree
That day in August!

Honey Jelly That Jells

Everything was in a flutter the other morning in "The Little Blue Kitchen." The "Honey Lady" had something up her sleeve and the household waited tense, expectant.

From time immemorial the Honey Lady has been an enthusiast about making jelly. She inherited this from her mother. She not only likes to make jelly, but she likes to make it in the most approved fashion, and scorns all "crutches" by way of commercial aids to the jelling process. "If I can't make it 'jell' by myself or itself, then I don't want it," she has often said.

But what was the "Honey Lady" up to this time? Nobody knew, and everybody knew better than to ask questions when she had that concentrated look upon her face, with her lips tightly closed. She didn't lift her finger as though to say "Keep still a moment, will you?" but everybody could SEE a shadow finger so raised and there was a hush in the "Blue Kitchen."

Honey Lady was making currant jelly. The currants had been washed and cooked the night before. As usual, she had covered the fruit with just enough water to immerse them, not a drop more. The currants had boiled entirely out of their skins, which took about twenty-five minutes after a rolling boil began. They had been strained in a jelly bag made of old, soft outing cloth. They, or rather their juice, was now being measured and the cupfuls counted very carefully. All but one cupful of the juice was placed in a large kettle. At the same moment exactly as many cups of white cane sugar were measured out and placed in the oven to heat.

But what is Honey Lady" up to now? Ah, the big secret is coming out!

To the one cup of currant juice saved out, and which she has placed in a kettle, and which is now boiling briskly, as is the juice in the big

container, she is adding—well, what do you think of that!—a cupful of strained honey!

"Why, woman, what are you doing?" cried an excited masculine voice. "Never you mind. This is my honey laboratory, isn't it? I'll explain later." So silence again reigned. Slowly Honey Lady tried out each mixture (having meantime, after the juice in the large kettle had boiled for about twenty minutes, and that in the little kettle had done the same, added sugar to the one and honey to the other). After a while a smile crept over her face. The two mixtures were both showing signs of jellification!

Later, when she was sure each kettleful was ready, she poured the beautiful pink liquid into the perfectly washed glasses, in which up to that moment there had been hot water to make sure of no cracks.

The honey-juice liquid was poured into two special shaped fluted glasses, so she would recognize which was which. After that, Honey Lady was ready to do a bit of talking.

"Thanks, folks," she said, "for keeping so quiet and not asking any more questions. Now I'll explain." Everybody sat down, breathless, to hear. "You know how I've always prided myself on my jelly, and incidentally you know why it's so clear, don't you?" One voice said, "No, why?" "Well, because I always strain it at least seven times, back and forth, back and forth, while the juice is hot and before I add the sugar.

"Well, you also know what a 'fan' I am about honey and honey combinations." A chorus answered "yes" this time. "Well," she went on, "I got to thinking the other day that if one could use honey instead of sugar when making jelly, all the folks who prefer that sweet, or who are obliged to do without cane sugar for health reasons, could have all the jelly they like as well as we who are wholly

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The Detection of Carnauba Wax in Admixture With Beeswax

By W. F. Baughman and G. L. Keenan
United States Department of Agriculture.

IT has been brought to the writer's attention that carnauba wax is being used in admixture with beeswax for the production of commercial comb foundation. The carnauba wax is added to strengthen the foundation. The advisability of this policy is doubted by some members of the trade because when combs which have been built on this kind of foundation are melted and the wax is again made into foundation there will be an increasing amount of carnauba wax in the product. If this policy continues they fear it is possible that the time may come when only virgin beeswax will be pure—that is, beeswax rendered from combs not built on commercial comb foundation, but built entirely by the bees.

A method for the detection of small quantities of carnauba wax in admixture with beeswax was developed by L. R. Watson (1). The Bureau of Entomology, U. S. Department of Agriculture, desired that this method be given a thorough investigation in order to determine its reliability; also, requests have been received from commercial concerns for opinions in regard to its value. This paper contains the results of a study of the Watson method.

The test was applied to samples of authentic beeswax which had been

This is a joint contribution of the Microanalytical Laboratory of the Food and Drug Administration and the Oil, Fat and Wax Laboratory, Bureau of Chemistry and Soils, United States Department of Agriculture.

collected from Government apiaries and from naturally built combs (Table 1); also to samples which were represented to be authentic beeswax (Table 2), and to a number of admixtures of beeswax and carnauba wax (Tables 3 and 4). The results of the crystallization or dissolution temperature determinations are reported in the tables. The observations made by visual inspection and microscopical examination of the contents of the test tubes are described in the body of this communication.

Description of Method

The procedure used is practically the same as that described by Watson (loc. cit.), with the exception that the microscopical examination was made with the aid of ordinary transmitted light instead of dark field illumination.

A measured amount of the wax to be tested was obtained by use of the

sampling rod described by Watson and kindly furnished by him. This is a small steel rod with a shallow depression in one end large enough to hold a pellet of wax weighing 8.5 mg. The cavity of the sampling tool was lubricated by means of the butt end of a match stem which had been moistened with glycerol and was then filled by pressing it down on a small bead of the wax, on a glass plate, also moistened with glycerol. The end of the rod was wiped free from glycerol with a small piece of hardened filter paper. The pellet of wax was then lifted from the mould with the point of a needle and dropped into a clean, dry test tube (15 cm. by 1.6 cm.).

As described by Watson, an 800 cc. beaker was fitted with a rack consisting of a disk of sheet metal perforated with six holes at equal distances near the edge to receive six test tubes, and one hole in the center to receive a cork holding a thermometer. The bottom of the beaker contained a disk of hard rubber provided with slight depressions for the test tubes to stand in. This rubber disk is necessary to keep the test tubes from slipping and to prevent troublesome light reflections.

Exactly 2 cc. of normal butyl alcohol (B.Pt. 115°-118°) were added from a burette, to each test tube containing a pellet of wax. This wax

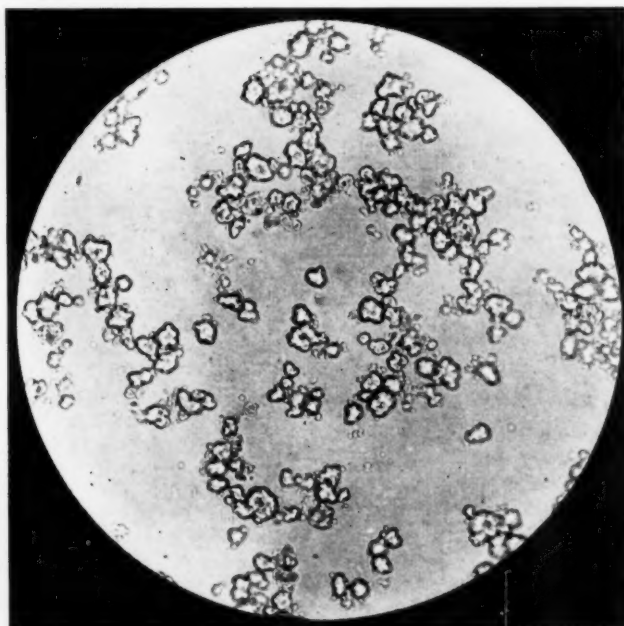


Fig. 1
Carnauba Wax (X200)
Incipient crystallization, 53.6°

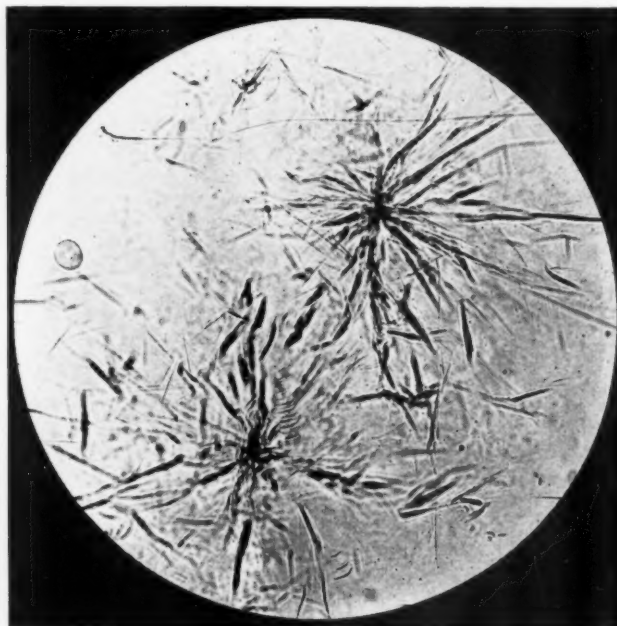


Fig. 2
Beeswax (X200)
Incipient crystallization, 40.2°



Fig. 3
Beeswax (X200)
Incipient crystallization, 37.6°

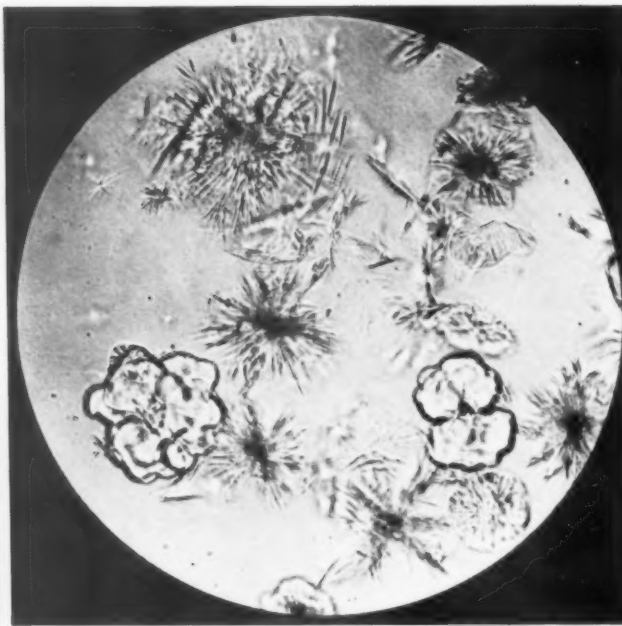


Fig. 4
Beeswax (X200)
Incipient crystallization, 39.5°

was brought into solution by holding about one inch of the lower ends of the tubes in boiling water and carefully shaking until the solutions became clear and homogeneous. The upper ends of the tubes were kept cool in order to prevent the loss of any of the solvent. As fast as the solutions were developed the tubes were placed in the rack in the 800 cc. beaker containing 300 cc. of water heated sufficiently to measure approximately 60° C., when the last tube was set in.

(Turn to column 3, page 378)

Table 1
Beeswax from Government Apiaries and from Naturally Built Combs

Sample No.	History of Sample	Crystallization or Dissolution Temperature	
		Keenan	Baughman
20	Government Apiary, Baton Rouge, Louisiana	40.4°	39.9°
21	Built by Italian bee colonies, Baton Rouge, La.	41.5	41.1°
26	From ten bee trees within radius of 30 miles, Calif.	39.5	39.6°
27	Naturally built comb; bees fed on sugar and Government formula, Baton Rouge, Louisiana	40.4	40.4°
28	Comb built on pine tree, Somerset, Maryland	36.3	36.2°
32	From Clemson College, South Carolina	37.3	37.4°
33	Government Apiary, Laramie, Wyoming	40.0	39.8°
34	Government Apiary, Laramie, Wyoming	39.8	39.4°
35	Government Apiary, Somerset, Maryland	38.9	37.6°
36	Government Apiary, Somerset, Maryland	40.3	40.6°
43	Naturally built comb from Wisconsin	40.2	39.8°
44	Naturally built comb from Wisconsin	40.5	40.0°

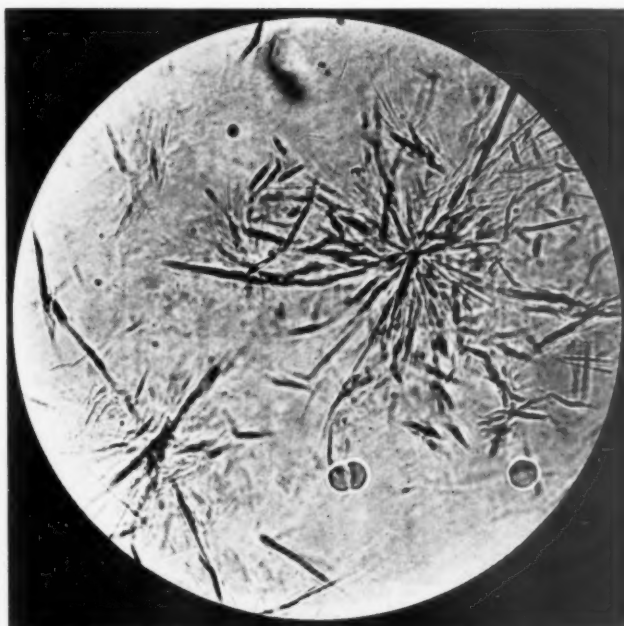


Fig. 5
Beeswax (X200)
Incipient crystallization, 40.0°



Fig. 6
Beeswax (X200)
Incipient crystallization, 39.7°

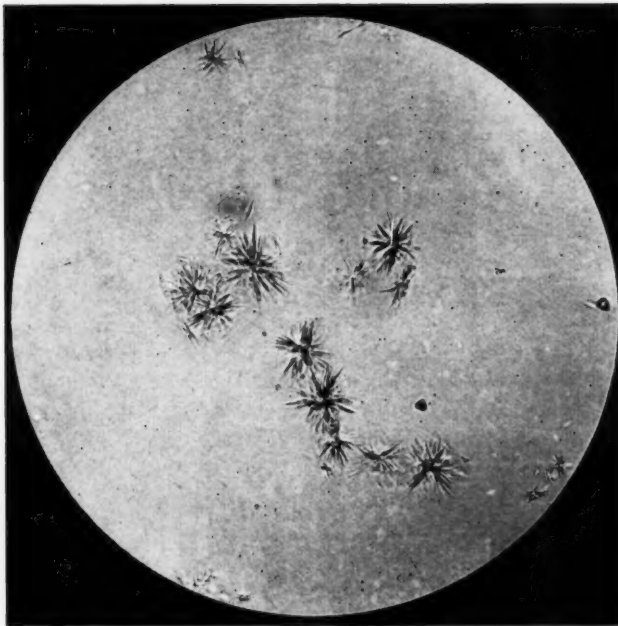


Fig. 7
Beeswax No. 18, containing 0.3% Carnauba Wax
Incipient crystallization, 40.2°
(X200)



Fig. 8
Beeswax No. 32, containing 0.3% Carnauba Wax
Incipient crystallization, 39.3°
(X200)

Table 2 Represented to Be Authentic Beeswax		Crystallization or Dissolution Temperature	
Sample No.	History of Sample	Keenan	Baughman
18	From South Carolina	39.0°	39.0°
19	From South Carolina	38.0	37.2°
22	Box hive, Louisiana	40.2	39.7°
23	Black hybrid bees, Louisiana	37.1	36.8°
24	From New Zealand	40.3	40.0°
25	From North Carolina	39.0	39.9°
29	Melted refuse, Wyoming	41.0	40.6°
30	Scrapings from hive, Wyoming	41.0	40.3°
37	Naturally built comb, fumigated with cal. cyanide	38.8	38.6°
38	From California	39.6	39.6°
39	From California	38.3	38.9°
40	From Michigan	40.2	39.4°
41	From Illinois	39.9	40.0°
42	From Illinois	40.0	39.4°

The beaker containing the tubes standing in the hot water was lowered into a 1.5 liter beaker and allowed to stand on a thin cork with a diameter of 8 cm.-9 cm. This outer beaker provided insulation so that the temperature in the inner beaker dropped from about 60° C. to room temperature in the course of approximately two hours.

Dissolution Temperatures and Visual Inspection

The temperatures at which precipitates first appeared in the tubes were recorded, also the physical appear-

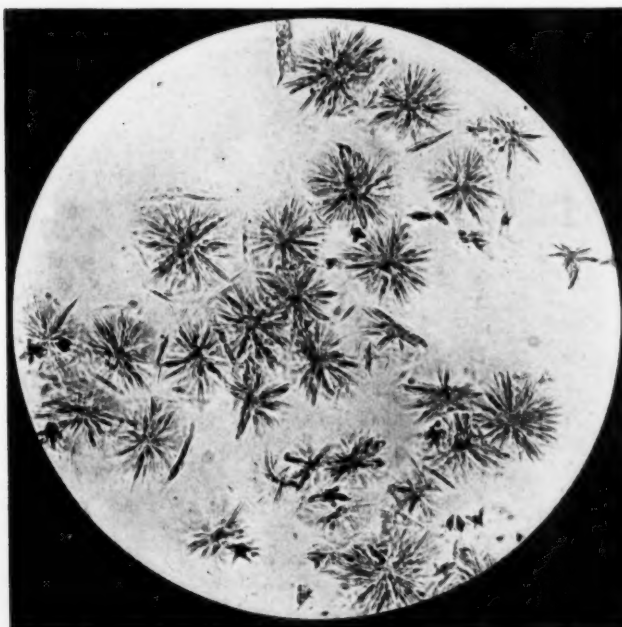


Fig. 9
Beeswax No. 21, containing 0.5% Carnauba Wax
Incipient crystallization, 40.9°
(X200)

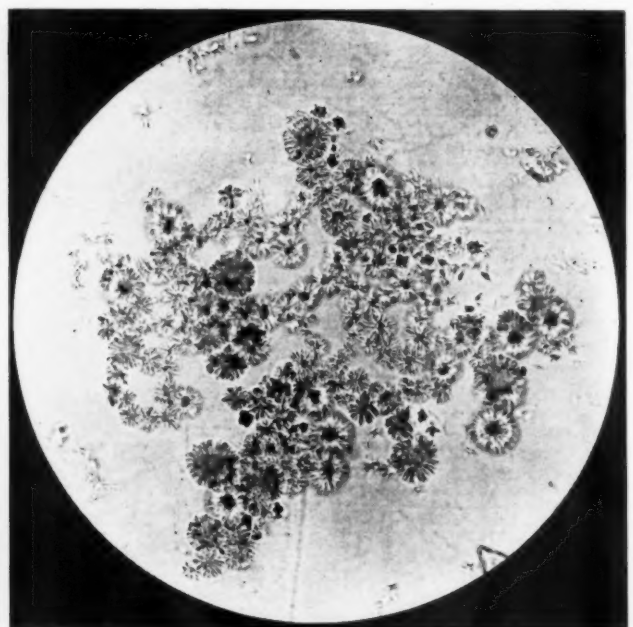


Fig. 10
Beeswax No. 23, containing 0.5% Carnauba Wax
Incipient crystallization, 39.3°
(X200)

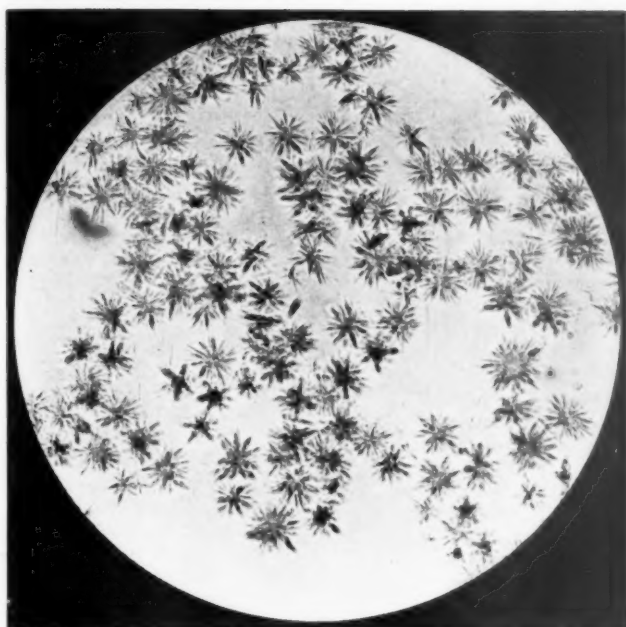


Fig. 11
Beeswax No. 21, containing 1.0% Carnauba Wax
Incipient crystallization, 42.0°
(X200)

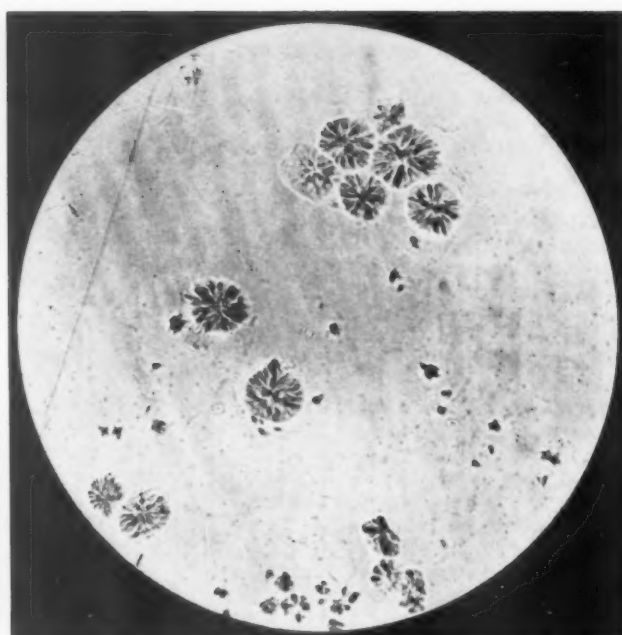


Fig. 12
Beeswax No. 21, containing 2.0% Carnauba Wax
Incipient crystallization, 41.6°
(X200)

ance of the contents of the tubes, as the precipitation proceeded, was carefully noted. The lowest crystallization temperature observed for a beeswax sample was 36.2° C. and the highest was 41.5° C. The dissolution temperature of carnauba wax was found to be approximately 53.5° C. In most instances the admixture of a very small amount, 0.3 per cent to 0.5 per cent, of carnauba wax with beeswax raised the dissolution temperature of the mixture between one and two degrees above that of the beeswax, and the presence of a higher percentage of carnauba wax raised this temperature still more. These results agree with Watson's observations. However, contrary to his own conclusions, certain samples of beeswax were found whose dissolution temperatures were actually lowered by 0.5 per cent admixture with carnauba wax and raised less than one degree by a 2.0 per cent admixture.

In other words, the temperature at which standard butanol solutions of authentic beeswax (8.5 mg. wax in 2 cc. normal butyl alcohol) showed the first signs of precipitation were found to range between 36.2° C. and 41.5° C., a difference of 5.3° C. The maximum increase in dissolution temperature caused by a 2.0 per cent carnauba wax admixture was only 3° C., and in some samples containing 2.0 per cent carnauba wax the dissolution temperatures were raised less than 1 degree. Therefore, it is evident that when examining an unknown beeswax sample for the presence of carnauba wax no significance can be attached to the dissolution temperature determined by this procedure

(Turn to page 380)

Table 3

Beeswax and Carnauba Wax Mixtures

Sample No.	Description of Sample	Crystallization or Dissolution Temperature	
		Keenan	Baughman
88	Beeswax No. 21 (41.3)* and 0.3% carnauba wax	40.5°	---
45	Beeswax No. 21 (41.3) and 0.5 carnauba wax	40.8	41.0°
46	Beeswax No. 21 (41.3) and 1.0 carnauba wax	42.1	41.9°
47	Beeswax No. 21 (41.3) and 2.0 carnauba wax	41.1	42.2°
89	Beeswax No. 23 (36.9) and 0.3 carnauba wax	39.5	---
48	Beeswax No. 23 (36.9) and 0.5 carnauba wax	39.3	39.4°
49	Beeswax No. 23 (36.9) and 1.0 carnauba wax	40.1	39.8°
50	Beeswax No. 23 (36.9) and 2.0 carnauba wax	39.8	40.2°
87	Beeswax No. 18 (39.0) and 0.3 carnauba wax	40.2	---
51	Beeswax No. 18 (39.0) and 0.5 carnauba wax	40.4	40.0°
52	Beeswax No. 18 (39.0) and 1.0 carnauba wax	40.7	40.4°
53	Beeswax No. 18 (39.0) and 2.0 carnauba wax	40.9	41.2°
90	Beeswax No. 29 (40.8) and 0.3 carnauba wax	38.8	---
54	Beeswax No. 29 (40.8) and 0.5 carnauba wax	40.7	39.4°
55	Beeswax No. 29 (40.8) and 1.0 carnauba wax	40.2	41.0°
56	Beeswax No. 29 (40.8) and 2.0 carnauba wax	41.2	41.3°
79	Beeswax No. 26 (39.5) and 0.3 carnauba wax	---	40.2°
57	Beeswax No. 26 (39.5) and 0.5 carnauba wax	40.8	40.2°
58	Beeswax No. 26 (39.5) and 1.0 carnauba wax	40.1	40.9°
59	Beeswax No. 26 (39.5) and 2.0 carnauba wax	40.7	41.4°
80	Beeswax No. 32 (37.3) and 0.3 carnauba wax	---	39.3°
60	Beeswax No. 32 (37.3) and 0.5 carnauba wax	38.4	39.8°
61	Beeswax No. 32 (37.3) and 1.0 carnauba wax	40.3	39.3°
62	Beeswax No. 32 (37.3) and 2.0 carnauba wax	---	39.3°

* This figure is the dissolution temperature of the beeswax used.

Table 4

Beeswax and Carnauba Wax Mixtures

Crystallization or Dissolution Temperature

0.3% Carnauba		0.5% Carnauba		1.0% Carnauba		2.0% Carnauba	
Keenan	Baughman	Keenan	Baughman	Keenan	Baughman	Keenan	Baughman
---	40.5°	40.8°	41.0°	42.1°	41.9°	41.1°	42.2°
---	39.5°	39.3°	39.4°	40.1°	39.8°	39.8°	40.2°
40.2°	---	40.4°	40.0°	40.7°	40.4°	40.9°	41.2°
38.8°	---	40.7°	39.4°	40.2°	41.0°	41.2°	41.3°
40.2°	---	40.8°	40.2°	40.1°	40.9°	40.7°	41.4°
39.3°	---	38.4°	39.8°	40.3°	39.3°	---	39.9°

unless that temperature is 42° or higher; also, it is evident that considerable amounts of carnauba wax can be added to many samples of beeswax without causing the dissolution temperature to rise above the maximum dissolution temperature for authentic beeswax.

The physical appearance of the contents of the test tube, as dissolution begins and as it proceeds, possesses greater analytical importance than the dissolution temperature itself. Beeswax may be classified into two groups according to this test tube appearance. Beeswax in one group separates from butyl alcohol solution as large, loose, glistening crystals or granules which grow slowly. After one or two hours all settle to the bottom of the tube except a few crystals which remain suspended in the clear liquid. All settle on standing over night. Beeswax in the other group also comes from solution as large, glistening crystals, but they settle very little, and after standing over night large crystals still remain suspended in the clear liquid. Carnauba wax precipitates from butanol solution as a fine uncrystallized powder which settles very slowly and causes the liquid to appear milky. On standing over night most of the powder settles to the bottom of the tube, leaving the liquid slightly milky. Mixtures of the two waxes, containing 0.5 per cent or more carnauba wax, do not come out of butanol solution as separate granules or crystals, but when the dissolution temperature of the solution is reached the liquid becomes cloudy or milky. After several hours the precipitate shows a tendency to draw together in the center of the liquid and form a spongy mass. On standing over night the precipitate settles somewhat, but appears spongy and not crystalline. It leaves about half the liquid as a supernatant turbid layer. Most of the 0.3 per cent admixture examined by the writers acted the same, but in two of them (No. 88 and No. 90, Table 3) very small particles separated from solution and settled to the bottom of the tube in the course of about two hours.

The basic beeswax samples used for making the 0.3 per cent admixtures (No. 88 and No. 90), which gave the eccentric test tube appearance, also formed 0.5 per cent, 1.0 per cent and 2.0 per cent mixtures which gave abnormal dissolution temperatures. (Compare results obtained on samples No. 21, Table 1, and No. 29, Table 2, with results obtained on samples No. 45, No. 46, No. 47, No. 54, No. 55 and No. 56, Table 3). That is, a 0.5 per cent carnauba wax admixture with these two beeswaxes actually lowered the dissolution temperatures and a 2.0 per cent admixture raised the temperatures less than one degree.

The observations described above were made on duplicate samples of the different waxes, with the exception of the 0.3 per cent admixtures, one of each pair being examined by each author. An examination of the four tables of results will show that duplicate determinations of the dissolution temperatures, for the most part, agree closely. The physical appearance of the test tube contents of the duplicate samples always agreed.

Microscopical Examination

After visual inspection the test tubes were stoppered with cotton plugs and left at room temperature over night. The following morning some of the crystalline material was carefully removed with a pipette to a microscopical slide and the coverslip applied. Microscopical examination was made in ordinary transmitted light and at a magnification of approximately 200 diameters. Contrary to the experience of Watson, ordinary light was found much to be preferred to the dark field condenser. The diagnostic characters of beeswax and admixtures were clearly brought out by using the microscope equipped with ordinary condenser and illumination from a Spencer microscope lamp provided with daylight glass. Furthermore, an ordinary microscope with the usual equipment is more readily manipulated by the average observer and brings out the diagnostic characters without any difficulty.

Beeswax normally takes the form of long dendritic, radiating aggregates of colorless needles when it comes out of normal butyl alcohol solution. (Figs. 2, 4, 5.) Variations in the appearance of different beeswaxes are apparent. Frequently the long needles will not be arranged in well formed radiating aggregates, but dispersed in rows, the needles overlapping one another. (Figs. 3, 6.) Occurring in varying amounts in the different waxes are masses of a sheet-like, stippled substance and concretions of non-crystalline material. (Figs. 3, 4.)

Microscopical examinations of carnauba wax, on the other hand, show that it does not come out of normal butyl alcohol in definite crystalline form, but occurs in nodules of singly refracting material (Fig. 1), many of them containing a hollow center.

The addition of even small amounts of carnauba wax (as little as 0.3 per cent) to beeswax produces a marked change in the size of the needles as well as in their arrangement in groups. The presence of carnauba wax is shown by small radiating groups of short needles, the aggregates usually containing more needles than do beeswax groups. The tendency of the presence of carnauba wax is to shorten the needles and cause them to form in denser aggregates, rather than in the loose, dispersed,

sprawling, radiating groups characteristic of beeswax. (See Figs. 7-12.)

Comparison of the illustrations of beeswax with those of the carnauba-beeswax mixtures indicates how distinctive the microscopical appearance is. Test tube preparations of beeswax containing 0.3 per cent, 0.5 per cent, 1.0 per cent and 2.0 per cent of carnauba wax, respectively, were examined microscopically, and carnauba wax was readily detected.

Conclusions

The dissolution temperature of beeswax, determined according to the Watson procedure, has very little significance in detecting carnauba wax adulteration of beeswax, because the difference between the minimum and maximum dissolution temperature is so great that considerable amounts of carnauba wax can be added to most beeswax without causing the dissolution temperature of the mixture to rise above the maximum temperature for beeswax.

The appearance of the contents of the test tubes as dissolution begins and proceeds, and the characteristics of the precipitated matter as determined by microscopical examination are the important analytical criteria of the Watson method. By these it is possible to detect, qualitatively, carnauba wax in admixture with beeswax in amounts as small as 0.3 per cent. However, the method appeared to have no quantitative significance.

Acknowledgment

The writers desire to acknowledge the cooperation of James I. Hambleton, of Bee Culture Investigation, Bureau of Entomology, U. S. Department of Agriculture, who furnished the beeswax samples used in this investigation.

Let the Mules Sell Honey

C. H. Gustafson, of Lincoln, Nebraska, says: "All farmers are in the position of the one driving a load of wheat to town. He stopped at a neighbor's house, but forgot to tie the mules. When he came out the mules were gone. The farmer started to walk to town. Before he got there he met the mules coming back with the empty wagon. They had been driven so often to the elevator that they knew the way. The elevator man knew the mules. When they arrived he weighed the grain, wrote out a check, tied the check to the wagon seat and started the mules back. The farmer stopped his mules, climbed onto the wagon seat, found the check and the weight slip.

"Well, I'll be darned," said he to himself. "Those mules got a cent a bushel more for the wheat today than I got yesterday."

Looks as though we might yet find it advisable to let the mules sell honey.

J. H. Sturdevant,
Nebraska.

"Milk-Frost," a Confection Flowing With Milk and Honey

Through the kindness of H. E. Coffey, of Whitsett, Texas, we learn of a new frozen confection and dessert which is being manufactured by the Frosted Milk Corporation of San Antonio, Texas. It is reported that for the city of San Antonio alone this new concern is using something like 10,000 pounds of honey a week.

The Frosted Milk Corporation, beginning business about the first of March, is well organized with a responsible membership and with great enthusiasm in the possibilities. A model plant has been built on South Alamo Street, San Antonio, with special machinery and a daily capacity of 2500 gallons of the new type of frozen dessert and confection, which is made entirely from milk and honey, flavored with fresh fruits and nuts. The trade mark and copyright on the product "Milk-Frost" are protected in the United States and abroad. The officers of the company are: A. L. Huber, president; J. S. Sharp, treasurer, and J. S. McGillivray, secretary and general manager.

The formula for making the milk and honey confection was devised by McGillivray some years ago as a result of years of study of dairy products, especially ice creams and frozen confections. The principal ingredients are grade A whole milk, honey, fruits and nuts, for which there are no substitutes. The big idea of the company is that honey from every standpoint is supreme over cane sugar.

The manufacture and sale of "Milk-Frost" was begun for the first time about the first of June, and the way it has taken the San Antonio public is astonishing.

The product is manufactured in five-cent bars, honey coated and frozen, and also in pints, quarts, and larger quantities for home and commercial use. Approximately \$40,000 has been expended in equipping the plant with a chocolate dipping machine with a capacity of 1200 of the new bars per hour. The storage freezer, at which the daily temperature may be held 30 degrees below zero, is also a feature.

Distribution will be from drug stores, meat markets, delicatessens, cold drink stands—any place where food is handled. Carbonic ice is used for servicing the containers. In addition to the bulk and bar forms of "Milk-Frost," it will be made in fancy shapes for parties on order.

In its advertising the Frosted Milk Corporation uses the slogan, "Eat a glass of milk." "Milk-Frost" is not an ice cream, but a frozen table dessert, both wholesome, healthful, refreshing and tasty. It relieves thirst, satisfies hunger, and tickles the palate. It is made of grade A whole

milk, sweetened with honey and flavored with fruits and nuts. There are no substitutes for milk, honey, fruit and nuts.

This is one of the first attempts to commercialize the use of honey in a food product backed up by capital and enthusiasm, and we wish the new concern every success in the world. If products like "Milk-Frost" become common, beekeepers will have no need to worry about an outlet for all the honey they can possibly produce.

Help Asked for Memorial to Dr. Dzierzon

Mindful of the words of the poet, the place which a good man enters is consecrated. The Upper Silesia Beekeepers' Association is to place a tablet carrying his likeness in the house at Lowkowitz, near Kreutzburg, where the old bee master, Dr. Dzierzon, died, and place this inscription on it: "In this house Doctor Dzierzon, the greatest bee investigator of all times and of all peoples, died on October 26, 1906." The artist's sketch of this memorial tablet is completed, and, after successful financing, will be carried out in bronze by the Gleiwitz Foundry.

In order to make possible this special honor to our world-renowned old master, we are asking that suitable memorial contributions be made and sent to Mr. Auras, Freundstrasse 12, Gleiwitz, Oberschlesien, Germany.

The estimated cost of the memorial tablet is in the neighborhood of 1300 to 1500 marks. In addition, 300 marks are necessary in order to restore the grave of the old master, who died twenty-five years ago.

Any beekeepers in America wishing to contribute to the Dzierzon memorial should transmit their contribution to the address above. Even small amounts will help.

J. Adamek, President,
Upper Silesia Beekeepers' Ass'n,
Hindenburg, Germany.

New Bulletin

"Beekeeping in Pennsylvania" is the title of a new bulletin by Edwin J. Anderson, recently issued by the Pennsylvania State College. It is a well illustrated publication of 36 pages and is to be recommended to anyone interested in bees.

The essentials of management are covered briefly and most of the questions likely to be asked by a novice are answered. Those wanting copies should write to the College of Agriculture, State College, Pennsylvania.

A New Book by Pellett

The latest and, to the writer's mind, the most interesting of Frank C. Pellett's books is just off the press. It is entitled "The Romance of the Hive." It is a nice cloth-bound book of 200 pages with some 70 illustrations from original photographs by the author.

Obviously, the attraction of the book lies in the interesting treatment of his subject by the author. The fascinating romance which every naturalist makes of the subject he is investigating is told in such language in this book as to make it equally fascinating to the reader.

Nor is the book devoted entirely to the honeybee, but chapters also deal with the paper wasps, nectarina bees, flowers and plants in their relation to the honeybee.

We are all interested in that great mystery—life. We all wonder what the connection between similar form in the animal and vegetable kingdoms.

Why does the wasp make a paper nest and feed on animal matter while the honeybee makes a soft beeswax home and feeds on vegetable matter? The nectarina of Texas and Mexico makes a paper comb like the wasp, but stores honey like the honeybee, and loses its sting also. What is the relation? Which is the farthest developed?

And the inter-relation of the bee and the flower and fruit. How did it develop? Why does a plant secrete nectar to attract the bee for fertilizing purposes and yet under different conditions have no honey available? The cotton yields on the black land of the South, and but a few miles distant on different land yields but little. The alfalfa is a honey producer in the intermountain territory, but has little nectar in Illinois. And in Colorado the honey from it is white, while in the Imperial Valley of California it is amber. But why?

And man claims to be on the pinnacle in the scale of evolution, yet the honeybee as a social family gets along with far less friction than does the human family.

All of these and many more similar subjects are treated by Pellett in a fashion that makes the book both interesting and alluring. No doubt the book will have ready sale in the general book trade from the nature lover. It should have as ready a sale with the beekeeper, since it contains many instructive facts for you and me, and numerous interesting observations by the author which make you want to read the complete book before laying it down.

The book is published by the Abingdon Press of New York and sells at a price of \$2.00. It may be obtained from this office also if desired.

A Summary of Facts About the Use of Formaldehyde in the Apiary

(Continued from page 375)

polymerization or polymerism. These words mean the same thing and refer to the peculiarity that some organic substances possess of undergoing a change by forming, through a union of their molecules, new substances of a higher molecular weight but of the same percentage composition as the original compound. Paraformaldehyde is a solid substance derived from formaldehyde in this way. It consists of three formaldehyde molecules, which form on the slow evaporation of a solution of formaldehyde in methyl alcohol. Remembering that commercial formalin has in it water, formaldehyde and methyl alcohol, we have present all the conditions necessary to produce paraformaldehyde when formalin is used. Therefore, if we expose a brood comb to formaldehyde vapor or immerse it in formalin solution, paraformaldehyde will be deposited on drying. On being heated this substance splits again to form molecules of formaldehyde. Unlike formaldehyde, this substance is only slightly soluble in cold water; more so in hot water and readily soluble in caustic alkalies. With ammonia, paraformaldehyde combines to form a new compound known as hexamethylenamine, or urotropin. This last is readily soluble in cold water.

The practical significance of the above reactions may be better understood by performing a simple experiment. Place a little commercial formalin in a saucer and allow to evaporate. A white solid will be deposited which is paraformaldehyde. On trying to dissolve it in cold water it will be found highly resistant, taking large quantities of water and several hours duration. However, if a little household ammonia is added, complete solution will rapidly occur.

In using formaldehyde as a disinfectant we must keep in mind that it is a substance of complex chemical reactions which it is necessary to understand in order to use it effectively. We must remember that it reacts chemically with most organic substances. It may combine with the honey or with the protoplasm of the larvæ which may be in a comb. If disinfected combs are given to bees without further treatment, a large destruction of bees is almost certain. The paraformaldehyde remaining in the comb cells will dissolve in the honey subsequently stored in them and the brood and bees eating such honey will of course be destroyed. The common habit of beekeepers of letting bees clean out old combs is an unsanitary procedure, and where such combs have been treated with formaldehyde, invites, in addition,

the poisoning of large numbers of bees.

Practical Summary

From the above analysis and discussion we may deduct the following practical summary:

1. Soaking combs in formalin solution should be more efficient and require a shorter time than using vapor.
 2. Where formaldehyde vapor is used provision should be made for wetting the objects to be disinfected, either by dipping them first in water or, better, generating water vapor at the same time.
 3. After fumigation or immersion, the combs should not be permitted to dry without thorough washing, as this results in the deposition of paraformaldehyde.
 4. If combs have dried without washing, it is necessary to wash out the paraformaldehyde by using some caustic alkali. For this purpose household ammonia is suggested.
 5. After using ammonia, wash out thoroughly with several changes of water.
 6. Allow washed combs to dry before placing in the hive.
- In conclusion, it might be well to stress the point that prevention is better than cure. To prevent the ingress of disease-producing organisms is always more satisfactory than to try to eliminate them after they are present. It might not be out of place, therefore, to indicate the possible ways in which the diseases of bees are transmitted, so that steps may be taken for their prevention. The following summary shows most of these methods:
1. Robbing by bees.
 2. Using combs from infected hives or using moldy combs that have not been disinfected.
 3. Using infected hives or hive furniture.
 4. By contaminated hands, bee gloves or hive tools.
 5. Giving bees old combs to "clean out."
 6. By introducing diseased package bees.

Using Super Rim in Hiving Swarm on Foundation

In hiving a strong swarm on full sheets of foundation, an empty hive body or super rim should be placed underneath. The bees will then cluster below the bottom bars and move up gradually, relieving the foundation of any strain. Better combs will result, as they will be drawn out entirely down to the bottom bars, provided the swarm is strong and nectar is coming in. The empty rim below should be removed in three or four days, or before the bees begin to build combs below the frames.

E. S. Miller, Indiana.

Butter vs. Honey

During earlier years, butter and honey sold at about the same price. They were ordinarily to be found together on the same tables. Now honey retails at a lower price than butter, while butter sells at higher figures.

Honey has given way to substitutes, while the dairy industry has refused to surrender to substitutes. Beekeepers and beekeeping associations may take a lesson from the dairymen.

J. H. Sturdevant, Nebraska.

From the Little Blue Kitchen

(Continued from page 375)

well. Also, I gave a thought to my other fat friends who like their bread and jelly as well as others. So I decided to see whether I could make the jelly 'jell' as well with honey as with sugar."

"And do you think it will?" said sonny boy.

"It looks very much like it," she answered, "but we'll see when it has a chance to cool."

So all day we of the "Honey Lady's" family went again and again to the tray where the jelly was congealing in the sunshine (another way she takes to make the color beautiful). Finally the other glassfuls showed signs of becoming stiff, but the two honey-currant glassfuls remained wholly liquid. "Honey Lady," noting this, said "Well, perhaps it was a vain hope, but I'll not give up till morning."

Next morning, you may be sure everybody was on tiptoes to get out to the Blue Kitchen, and when the first one arrived he called to the slower dressers: "Hurry up, hurry up; the honey jelly is 'jellied'."

And so it was, and "Honey Lady" was the happiest woman in the world, because she believed she had made a wonderful discovery. The honey-currant-juice mixture was jellied beautifully and it tasted both like honey and currants. "This will be good news to all the folks who like their jelly and their honey," she laughed, "and I'm certainly going to send this news to the American Bee Journal at once. Since currant jelly can be made with honey, then it will be easy to make honey-quince jelly instead of the so-called 'quince honey' we've made so long with cane sugar; and I just know the waxy grapes (half green and half ripe) will blend beautifully with the lovely amber nectar that the fairies brew at the hearts of flowers and the busy bee fans into syrup for the palates of mankind."

Lida Keck-Wiggins.

The Editor's Answers

(Continued from page 373)

you might get 15 cents per pound at retail for 60-pound cans. But the wholesale would have to be somewhere near 10 cents per pound.

MOTHS AGAIN

As I am a member of your bee club, I would like information as to how to prevent beemoth, as I have some hives that are badly infested. MINNESOTA.

Answer—The only way to prevent wax-moths is to keep the colonies strong, as the bees themselves are fully able to defend their hive against them.

If you have colonies that are weak, you should unite them. Combs that are attacked by moths should be put inside of a strong colony and the bees will clear the combs of the intruders.

Queenless colonies are most apt to be infested with moths, as they lose their strength and their courage. You should make sure that your hives have good queens at all times.

BEEES IN CITY

Enclosed find a clipping from the Detroit Free Press of July 11, 1931.

I am in trouble and it seems very deep. I am a criminal of the worst kind because I keep bees.

There is not a city ordinance of any kind pertaining to bees. My bees are state inspected. Anybody can make a complaint just by phoning health department; do not even have to give your name. The health department then starts in to prosecute without any definite proof.

We will not allow you or anyone else to keep bees within the city limits, law or no law. Bees are dangerous. If a swarm would light on a child, the child would be stung to death, and so forth. That is the health department's view of the subject.

I hired a lawyer, of course. But before the case even came up, I found to my surprise that he was not necessary. Nevertheless he cost me twenty-five dollars. When the case comes up again on the 24th of July, I will have to do without his services, for I cannot afford him. My neighbors will be my mainstay.

This is my third year with bees. In 1930 I took a short course at Michigan State College under Mr. Kelty. I am doing everything possible to keep my bees right and control the swarming. I have four swarms at home and seven more at Romeo, Mich.

My neighbors are not kicking about my bees, but are going to court to help me win my case. The complainant personally does not appear.

Is there anything you can do to help me? One of my best supporters, Mr. Krebs, has left the state. I have not heard from Mr. Kelty to date. Pretty busy man.

Let me hear from you.

MICHIGAN.

Answer—Bees cannot be called a nuisance and cannot be excluded from a city just because they are bees, but in special cases a man's bees may prove injurious and may be ordered removed. If your neighbors testify in your favor, I do not see how your bees can be condemned. There have been numerous cases against bees, but as a rule nothing has been proven, except in special cases where they actually stung people. The Supreme Court has decided that an ordinance excluding bees from the limits of a city was void.

Of course, if it can be proven that your bees have annoyed people, they may compel you to remove them.

If you are not compelled to remove them, you may find it advisable to build a tall fence around your bee yard. A fence made of chicken netting, one-inch mesh, twelve feet high, compels the bees to rise above it in order to fly out, and they usually do not come down again from that height until they are in the flower regions.

It sometimes pays to make a present of a little honey to the man who thinks the bees are harmful.

Clear H Crystal

HONEY JARS

will sell your honey



No panels to catch shadows which darken the color. Beautiful in Clarity and Pattern, and Strength in Construction.

4 SIZES — Individual, Half Pound, One Pound and Two Pound. Accurate Graduation.

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Prices of wax are very low, and so of course will be on foundation. We do not, however, offer price as an inducement, but merit only. Last two seasons have established and proven the merit of our claim for our Non-Sag Brood Foundation. For 1931 we submit the further improvement of making our Medium Brood two standard widths—\$ 1/16, seven sheets to the pound, and 7%, eight sheets to the pound.

Write us for samples and prices

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Those large, uniform, dependable, prolific queens. The kind you need for good results. Their progeny are excellent honey producers, good to look at, and are surprisingly gentle.

Single queens, \$1.00: two to nine, 80c; ten to twenty-four, 70c; twenty-five and over, 60c. No reduction in quality.

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Latham's Queens
"Sho-Su-to-me" Queens
are line-bred three-banded
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*This strain of Italians is unsur-
passed in tongue-length and also
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1 untested laying Queen 80 cents
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Time, Money

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(Mention American Bee Journal when writing)

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AND GET HONEY—THEY SATISFY

The kind WE use in our extensive Michigan Apiaries, where we produce honey by the carloads.

Choice untested Italian Queens, 60c each; 10 or more, 50c each. Tested, 50c each extra. Write for prices in large quantities.

All queens sent from Sumterville,
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Address for quick service

David Running Apiaries
Sumterville, Alabama

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

Dr. L. O. Howard Honored

Dr. L. O. Howard, of the Bureau of Entomology, under whose supervision the office of Bee Culture at Washington has been from its beginning so many years ago, has retired from active service, dating from the end of June this year.

He has not only been commander of the army of defense in the struggle against economic insects, but he has built and trained that army. When he entered the service of the department in 1878, economic entomology was hardly more than a name. He has seen it grow around him and has contributed greatly to its growth.

On June 11 a group of the leading scientific men in Washington gave a dinner in honor of Dr. Howard's seventy-fourth birthday and to bid him godspeed on his voyage to Paris, where he expects to spend time in researches on outstanding insect material in the French collections.

The 1931 Capper award for distinguished service to American agriculture was recently awarded to Dr. Howard also from a list of two hundred candidates, by a committee headed by F. D. Farrell, president of Kansas State College.

The Capper award, which is bestowed annually, consists of \$5,000 in cash and a gold medal designed by the National Fine Arts Commission. Its object is to provide an expression of gratitude to those who make contributions of national importance to American agriculture and to stimulate public appreciation of the unusually fine service to America's basic industry.

In giving the award, Dr. Howard is recognized as the outstanding leader in the field of insect control, his methods contributing millions of dollars each year to prevention of loss in many industries.

Heart of America Association Convention Most Successful

The most successful and representative beekeepers' convention ever held in Missouri was held at the home of J. F. and Mrs. Diemer near Liberty, July 12. Every beekeeper was a progressive. Evidently the bee folks are wide awake to the necessity for cooperation. Many towns and counties in Missouri and Kansas were represented. It has been my pleasure to attend many interesting meetings in the past, but for real zeal and lively interest this meeting has never been surpassed in the state.

One of the interesting measures that had been taken some time ago was the organization of the Missouri State Beekeepers' Association, which has been incorporated under this name and is the only organization entitled to use this name under the Missouri law. A new organization seemed necessary in order to get cooperation among the beekeepers which have been sluggish for a few years. The success of the new organization was quite obvious, judging by the expressions of this representative body.

Next meeting will be held at the home of Mr. and Mrs. A. V. Couger, 10628 Winner Road, Independence, Missouri, August 9.

Maryland Meeting Picks Champion Bee-Catcher

The "champion bee-catcher of Maryland" was determined when E. A. Andrews, Jr., of Baltimore, caged thirty-eight bees in five minutes at the first summer field meeting of the Maryland State Beekeepers' Association, held at the U. S. Bee Culture Laboratory at Somerset, Maryland, June 20. A. Howard Johnson, of Centerville, last year's champion, failed to defend his title. Last year the contest lasted three minutes. The bees were picked up on the bottom board and placed in a water tumbler covered by the hand. A sting automatically eliminated a contestant. This year, however, five minutes was allowed. The bees had to be caught on the fly as they approached the hive, and placed in the tumbler. A sting did not eliminate. This required a deftness of hand and a stout heart. The only real casualty was a newspaper photographer who ventured a close-up. An account of this later appeared in one of the Sunday editions.

Mr. Johnson, however, made a comeback in the smoking contest, which he won without much trouble. Using sawdust for fuel, the contestants smoked up for three minutes and then let their smoker rest for three minutes, at the end of which time the judges determined the smoker which was burning the best.

The winner of the bee-catching contest was presented with a breeding queen, and the prize in the smoking contest was a good smoker.

Preceding the contests there was a fine program. The association has limited the time of the talks and there is much more interest in the

meetings. Dr. Ortel, of the Experiment Station at Baton Rouge, Louisiana; Dr. C. L. Farrar, of the Massachusetts Agricultural College; Mykola Hadak, of Ukraine; George E. Marvin, A. L. Freeland, and J. I. Hambleton, of the U. S. Bee Culture Laboratory, and George J. Abrams, of the University of Maryland, were the speakers. W. J. Nolan, of the Bee Culture Laboratory, introduced them.

A brief business meeting was held, after which everyone enjoyed a picnic lunch.

The Maryland Association is fortunate in being near the laboratory, and the hospitality of Mr. Hambleton and the laboratory staff is a great help to the association.

New York Beekeepers to Picnic at Roosevelt Farm

The Empire State Honey Producers will hold a summer meeting at Governor Franklin D. Roosevelt's Hyde Park estate at Hyde Park, Saturday, August 15. The Governor and Mrs. Franklin D. Roosevelt will be hosts to the association. Mrs. Roosevelt has several colonies of bees on the estate, which is near Poughkeepsie.

The program will include talks by Dr. E. F. Phillips, of Cornell, A. C. Gould, inspector, of Albany, and B. A. Slocum, of Cornell. Dr. G. A. Roosch, eminent bee investigator of Germany, will be the principal speaker. The officers of the association for next year will also be nominated at this meeting and elected at the winter meeting in December.

KOA Broadcast Proves Popular

R. G. Richmond, of Fort Collins, reports that at the weekly radio broadcast over KOA a talk given by Professor Paddock, of Ames, Iowa, on "Your Honey," has been one of the best on the subject of bees and honey for some time. Inquiries for copies have been large and Director Anderson of the Extension Service reports that they receive more requests for material on bees and honey than one any other subject over the station.

According to the present plan, R. G. Richmond is to broadcast over the same station, and arrangements are to be made by the nutritional specialist, Miss Miriam Williams, to broadcast during National Honey Week.

Let the Honey Cooks Get Busy for Missouri State Fair

Get an entry blank from W. D. Smith, Sedalia, and enter your exhibits, if you have not already done so.

Urge the good wife to make entries in the honey cookery. Prizes are very liberal. We want this division to grow, so we offer a chance to win real cash. One lady has been paying

her life insurance premiums with State Fair prize money won on cooking and canning. Any cook in Missouri is eligible.

Now, men, if you cannot come to the fair, "box up" some exhibits and ship them. A few have been winning good money this way. Address your shipment, "Apiary Department, State Fair, Sedalia," and send prepaid. We will display them the best we can, as we want a pretty show. The bigger show we have, the more people will see it, which results in greater honey consumption and better prices.

A ribbon is given for fifth place in every class. You have a good chance to win something, even in the fifth place. The ribbon will help advertise you and your honey. We are giving three extra prizes to those exhibiting the most honey. In the general display, put all the honey on your five-foot square table, just so it totals at least 250 pounds.

Clay T. Davis, Sup't,
Apiary Department.

Blaker Retires in Minnesota

We have a letter from Charles D. Blaker announcing his retirement from inspection service in Minnesota. Mr. Blaker says: "Beginning July 1, the apiary inspection work is in charge of Dr. A. G. Ruggles, state entomologist, University Farm, St. Paul. I wish to express appreciation to you at the close of my sixteen years of work as state inspector for the help and inspiration which I have received from you through your editorials, addresses and personal chats."

Of course, we appreciate the feeling behind this remark. We wish Mr. Blaker the very best in his retirement.

C. O. Yost, Indiana Inspector, Reported Killed in an Automobile Accident

Just as we go to press we learn, through correspondence, of the death of C. O. Yost, the well known inspector for Indiana, killed in an automobile accident. We do not have the details. This will be a severe loss to the state and to beekeepers generally because of the long and efficient service of Mr. Yost in the inspection system of the Hoosier State. We hope to have details concerning Mr. Yost's passing later.

Alfred Mottaz Retires

We learn from Mr. Alfred Mottaz, of Ottawa, Illinois, that he is quitting the bee business and will not be in a position hereafter to answer inquiries, many of which have come to him in the past because of his prominence.

Mr. Mottaz is one of the oldest of Illinois beekeepers, 89 years, and a beekeeper for a long time past. We extend our best wishes to him, and

Achord Queens

Select young three-banded
Italians

Bred for Service.

Vigorous, Gentle, Productive.

40c Each, Postpaid
Any Number

Return mail shipments if
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Safe arrival guaranteed

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RED STICK Packages and Nuclei

We guarantee: Purely mated select young queens—Liberal overweight—New light shipping cages—Delivery in good condition—No disease—Young pure Italian bees—No drones—Prompt shipment—First-class combs with nuclei—State health certificate—And, above all, satisfaction to the last degree.

	1-24	25 up
2-lb. Package	\$2.25	\$2.00
3-lb. Package	3.00	2.75
4-lb. Package	3.75	3.50
5-lb. Package	4.25	4.00
2-fr. Nuclei	2.50	2.25
3-fr. Nuclei	3.25	3.00
4-fr. Nuclei	4.00	3.75
Orchard Package	4.50	4.25

Queens included in above prices

Pure Italian Queens—1 to 4	50c
5 to 9	45c
10 or more	40c

Deduct 75c from above prices if packages or nuclei are wanted queenless. Parcel post shipment if desired.

We guarantee our packages and nuclei to be A No. 1 and first class in every respect, and assure you that you cannot go wrong if you place your order with us. Write for our circular and wire us your rush orders.

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Queens for August Delivery

All Italian stock. Good as can be produced. Satisfaction guaranteed or your money cheerfully refunded.

QUEENS—THREE FOR \$1.00

The MANGHAM APIARIES CO.
Mangham, Louisiana

Mack's Queens (3 Band) 50c each

Guaranteed to equal any you can buy,
regardless of price

Herman McConnell

(The Bee and Honey Man)

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Dependable Service on Standard Sizes

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Warranted purely mated Three-Banded Italians—No Disease—All shipments certified.
Young 1931 Three-Banded Italians—Select Stock—Prompt Shipment

50c each; 12-50, 45c each; 50-100, 40c each

Especially attractive prices on large lots. Write us.

M. C. BERRY & CO., Box 697, Montgomery, Ala.

his many friends, I am sure, join with us, hoping that he may live yet to a still riper age.

Beach Reports Varying Conditions in Utah

The honey crop around Burley will be below normal, according to Frank Beach, of Burley, because of weather conditions, early cutting of hay and shortage of bloom. Mr. Beach is optimistic about southern Idaho, however.

G. P.

Beekeepers' Meeting at Wichita

A fine meeting was held at Park Villa—Riverside Park, Wichita, Kansas, June 27, with a number of speakers of interest, including J. M. Michener of the Wichita High School; Z. Wetmore, past president of the Wichita Garden Club, and Dr. R. L. Parker, state apiarist. A. V. Small gave a fine talk on "Kinks," describing many things he has done to help make beekeeping a practical success.

Utah Discusses Ways and Means of Selling Honey

Ralph Smith, president of the Mountain States Honey Producers' Association, of Minneapolis, and A. W. Anderson, Utah field agent, were principal speakers at a meeting of the association held at Centerfield recently. The meeting was to discuss ways and means of financing the organization to enable it to get aid from the Federal Farm Board, the money thus obtained to be used to put the honey in small retail containers and to grade the product. Heretofore the honey has been sold wholesale in carload lots. Due to market conditions, it has been found necessary to change this practice in order to realize a profit.

State honey meetings are to be held in Sanpete, Juab, Sevier and Piute counties.

T. L. Ball, president of the Utah State Beekeepers' Association, says that the movement to offer honey in small containers and through many channels of trade is increasing. With the loss in the export market, wide-awake honey producers are on their toes with an effort to increase home consumption and cut down surplus honey in America.

Mr. Ball says that the Superior Honey Company, Ogden, of which he is manager, finds that the slender jars of glass packed honey are aiding sales in contrast to the old-fashioned squat jars, which do not make so good an appearance. He says, however, that sale of honey in tins is increasing, whereas glass pack is at a standstill, due to the cheaper output of honey in cans. The 2½-, 5- and 10-pound tin packs are selling well, the public getting most for their money in the cans.

G. P.

Crop and Market Report

Compiled by M. G. Dadant

For our August crop and market page we asked reporters to answer the following questions:

1. How is the crop?
2. Prospects for balance of season?
3. New honey selling?
4. Give retail price 5 lb., 10 lb., 60 lb. Jobbing price ton lots. Car lots.
5. Comb honey retail per section, case to stores. Jobbing.

How Is the Crop?

Not in twenty years of experience has the writer had such a universal report of disappointments in the crop harvested as during the present crop season. There are only a few outstanding sections where the crop seems to be anywhere near normal. This applies to parts of the New England states, southern New York, New Jersey, the Atlantic Coast states, northern peninsula of Michigan, and Nebraska. Louisiana is also fairly well favored. The balance of the country is reporting unusually poor crops and in many cases poor prospects.

Prospects for Balance of Season

As stated above, most of the sections except those we have mentioned are also report poor prospects for the balance of the season. Rains may change the situation somewhat in a number of localities. For instance, the fall prospects in the Central West may get more than they anticipated now that rains have fallen. North Dakota seems to be fairly well favored for the future. Of course, the crop is not yet made in the intermountain section, but prospects from last reports were not very flattering. The crop comes late there. Some sections of Texas apparently are going to get a very nice crop. Louisiana prospects are fairly good also. Buckwheat in Pennsylvania and New York may also be fairly good if they have satisfactory rainfall. The northern peninsula of Michigan has come out of it wonderfully. Everything being green, prospect looks good. Outside of these areas the reporters do not seem to indicate that anything very fine is coming. Naturally, the sweet clover sections are the best favored for crops from now on and good heavy rains now will no doubt have a lot to do with whether the crop is going to be slim or fairly good. In the Canadian provinces, Ontario is only reporting moderate conditions and the western provinces have been hurt very badly by the drought. However, as in the United States, sweet clover sections still have an opportunity to make

good. British Columbia is the only province which reports normal conditions and fine prospects for the future.

Honey Selling

It is too early, of course, for honey to be selling much in a retail way, as scarcely any sections have their crop off yet. The Southeast reports honey selling in a rather draggy way, but the crop moving along fairly well. The Appalachian sections have had a wonderful crop and are selling fairly well, although at reduced prices. The demand for the old crop has been very much better within the past two months and undoubtedly reports of the crop conditions have influenced a number of buyers to get in a new stock. In other cases stocks of distributors of honey are completely depleted and inquiries are coming in so that it is necessary for them to buy to meet the demand. There is no doubt but that retail prices will start off lower than last year, as also will the car lot prices on honey. With the extremely slow prospect, however, for a crop, we advise anybody against sacrificing their crop if they could possibly help it. This looks like a year where the market would start off very low and probably develop with the season, particularly if the much wanted increase in general conditions should materialize.

Suggested Retail Prices

Although we cannot make any recommendation of prices, we have gone carefully over the figures submitted by different reporters as to what prices are likely to rule and what prices should rule on honey in the different sections, and we are appending hereto table giving the sum-up of these suggestions.

The suggested prices are very much below last year. Again it is apparent that the beekeeper who has a well developed market for his honey is going to get somewhere near what he should have for it regardless of depression. Quite a large sprinkling of beekeepers have not made any reduction to amount to anything in their retail prices and are anticipating disposing of all of their honey at their regular prices. Naturally, these beekeepers are going to be encouraged also to buy fresh stock if the price between what they have to pay and what they get for their honey will be lower. We would urge strongly all beekeepers who are short of crop to buy early such honey as they will need to fill out their season, as we do not believe that honey prices will ever get much lower than they are right now.

	Car Lot White	Car Lot Amber	C. L. Comb No. 1	10 lbs. to Grocer	10 lbs. Retail	5 lbs. to Grocer	5 lbs. Retail	10 lbs. Comb Ret.	5 lbs. Comb Ret.	1-lb. to Grocer	1-lb. Glass Retail	Comb to Grocer	Comb per Section
Northeast	.07 1/2	---	---	1.20	1.50	.60	.75	---	---	.20	.25	4.50	.25
Southeast	---	---	---	---	1.50	---	.75	1.75	1.00	.20	.25	4.00	.25
South	---	---	---	1.10	1.40	.50	.65	1.50	.90	---	---	---	---
Texas	.06	.05	---	.80	1.00	.45	.55	1.40	.80	---	---	---	---
Southwest	---	.04	---	.80	1.00	.45	.55	---	---	---	---	3.00	.18
North Central	.06-7	.05-6	---	1.20	1.40	.55	.70	---	---	.16	.20	4.50	.25
Plains States	.05-6	.04-5	3.25	.90	1.10	.45	.60	---	---	.16	.20	3.60	.20
Intermountain	.05-6	.04-5	3.25	.90	1.10	.45	.60	---	---	.16	.20	3.50	.20
Pacific Northwest	.05-6	.04-5	---	.90	1.10	.45	.55	---	---	.16	.20	3.50	.20
California	.05-7	.03-5	---	.90	1.10	.45	.55	---	---	.16	.20	3.00	.20

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Rates of advertising in this classified department are seven cents per word, including name and address. Minimum ad, ten words.

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

BEEES AND QUEENS

CHOICE, bright Italian queens that are a pleasure to work with and you will be proud to own. Queen with stock that has been bred and selected in the North the past twenty-eight years for good wintering; hustlers, gentle, and fine color. One queen, \$1.00; two or more, 90c each; \$9.00 per dozen. Breeders, \$10.00. Emil W. Gutekunst, Colden, N. Y.

FOR SALE—Golden Italian queens, noted for their gentleness and honey gathering. None better. My prices the rest of the season, 50c each, any amount. Satisfaction guaranteed in U. S. and Canada. E. A. Simmons Apiaries, Greenville, Ala.

CAUCASIAN QUEENS—After June 1: One, 65c; ten, \$6.00; twenty-five or more, 50c each. Safe arrival and satisfaction. Tillery Bros., R. 6, Greenville, Ala.

BRIGHT three-banded or golden Italian queens, the very best, balance of season, 50 cents each; 50 to 100 lots, 45c. Taylor Apiaries, Luverne, Ala.

REACROFT—Select Italian queens: One, 75c; five, \$3.50; ten, \$6.50. Satisfaction guaranteed. Geo. H. Rea, Reynoldsville, Pa.

PURE ITALIAN BEES—Two-pound package with queen, \$2.50. Select untested queen, \$1.00; select tested queen, \$1.25. J. Allen, Catherine, Ala.

SUMMER and fall low price on the very best Carniolan and golden queens. Tested, 75c; untested, 50c. Bees, 75c per pound. C. B. Bankston, Buffalo, Texas.

DAY'S golden queens, balance of season, any number, 50c each. To meet competition, the price had to be cut, but they are still the big, bright, hustling kind—ones that will please you to look at and add profits to your income. They are shipped with a guarantee to be second to none. E. F. Day, Honoraville, Ala.

DIEMER'S bright Italian queens, 75c each, mailed to you in my double-barrel introducing cage. J. F. Diemer, Liberty, Mo.

GOLDEN Show-Bird queens. Special, select tested; no untested for sale. Price, \$2.50 each. Fancy price for fancy stock. Sent by parcel post. J. F. Diemer, Liberty, Mo.

YELLOW Italian queens. Bred to meet the many requirements of honey producers. Repeat orders prove they are doing this. Over 13 years a breeder. New low prices are: One untested, 90c; six, \$4.80; twelve, \$7.20; twenty-five, 55c each; over twenty-five, 45c each. Tested, \$1.25; select tested, \$2.00. Circular on request. Health certificate. Safe arrival and satisfaction. Hazel V. Bonkemeyer, R. 2, Randleman, N. C.

SHE-SUITS-ME Queens, after August 19, will be mailed at following prices: One queen, 60c; ten or more queens at 50c each. Queens can be reared in August here in Connecticut more cheaply than at any other time in the year. These queens will be first grade in every way. Allen Latham, Norwichtown, Conn.

40c EACH—Untested pure three-banded Italian queens; 10 for \$3.50. Queens that give real service. D. W. Howell, Shellman, Georgia.

FOR SUCCESSFUL wintering and next year's honey crop, queen with our hardy lobred Italians. Select untested queens 60c each. Charles L. Ruschill, Colfax, Iowa.

BIRD'S CAUCASIAN queens are best to head your colonies for record honey production, successful wintering, gentleness and beauty. One to one hundred, \$1.00 each. Try them. Bird's Apiaries, Odebolt, Iowa.

GOLDEN ITALIAN queens producing bees very gentle, that get the honey and cap it up white. Health certificate with queens. Tested, \$1.25; select tested, \$2.00; Untested, 80c each; six, \$4.20; twelve or more, 60c each. D. T. Gaster, R. 2, Randleman, N. C.

NORTHERN QUEENS—Michigan raised. Bright three-banded and leather-colored Italian. Thirty-five years' experience with bees. Twenty years' experience in raising queens for my own use. We selected our breeders for honey gathering qualities, gentleness, prolificness and color. Prompt services, honest dealings. One queen, 50c; dozen, \$5.40; fifty, \$20.00. N. J. Smith, Coopersville, Mich.

FINEST SEASON ever to get wired foundation drawn into combs. A frame and sheet of wired foundation put into a colony today is a comb drawn on Dadant's wired foundation tomorrow. Scale hive gained 7½ pounds yesterday (July 6). Putting in Dadant's wired foundation for all my next spring's packages. Jes Dalton, Kenner, La.

FOR SALE

FOR SALE—Cheap: Used honey cans, two to case, in good condition. Limited quantity. E. Rau & Co., 110 N. Franklin Street, Chicago, Ill.

OLD BOOKS on bees for sale. Write us for list and prices. John F. Hawkins, P. O. Box 203, Chester, Pa.

HONEY FOR SALE

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

HONEY FOR SALE—All grades, and quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Filion, Mich.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request. Dadant & Sons, Hamilton, Illinois.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

WHITE Clover extracted honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

HONEY FOR SALE—White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices. Dadant & Sons, Hamilton, Illinois.

FOR SALE—100% pure maple syrup, 100% pure country sorghum, comb and extracted honey. C. J. Morrison, South Bend, Indiana, 1235 Lincoln Way West.

HONEY—We sell the best. Comb in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. Tell us what you can use for prices. A. I. Root Company of Chicago, 224-230 West Huron St., Chicago, Ill.

LOWER prices on comb and extracted honey. Write H. G. Quirin, Bellevue, Ohio.

YOU can save and make money buying our honey, maple syrup and pure food products at wholesale prices for your own use and reselling to your neighbors and trade. Lowest prices 25 years. \$50,000 sales last year and expect to double this year. It will pay you in hard dollars and cents to line up with the Griswold Honey Company, Madison, Ohio, U. S. A.

FOR SALE—Sweet clover extracted honey; quality and body fine. Thomas Atkinson, Route 5, Omaha, Neb.

ORANGE, palmetto or amber honey in barrels. Peter W. Sowinski, Fort Pierce, Fla.

HOWDY'S HONEY—None finer. Fully ripened clover from central Michigan. Car lot or less. Write for prices, stating quantity wanted. Howard Potter, Jr., Ithaca, Mich.

NEW HONEY—White clover. Extracted, 60-pound cans, 8c; comb, No. 1, per case, \$3.50. F. J. Smith, Castalia, Ohio.

BEST new clover, also buckwheat honey, in 60-pound cans. Earl Ruleson, Route 1, Amsterdam, N. Y.

NEW crop white clover comb honey. Charles Guhl, Napoleon, Ohio, R. 7.

CLOVER-BASSWOOD honey in 60-pound cans at 7c pound. Edw. Hogan, Canandaigua, N. Y.

NEW crop clover extracted in new cans at 6½c; ton lots, 6c. Amber, 5c. A. J. Wilson, Hammond, N. Y.

NEW crop extracted clover honey in August. New cans and cases. Ask for sample and price on case or ton lots. Harry C. Kirk, Armstrong, Iowa.

HONEY AND BEESWAX WANTED

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkeley, 816 Hazel St., Birmingham, Mich.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

WANTED—Western states water-white and white honey in car lots. Send type samples. Advise quantity, price and point of shipment. E. F. Lane & Son, 325 Davis St., San Francisco, Calif.

HONEY WANTED—Send sample and quote lowest price. John Harnack & Son, McGregor, Iowa.

WANTED

WANTED—Position with big beekeeper as manager for 1932, or lease with same. Best references. Prefer mountain states location. Address Manager, care American Bee Journal.

WANTED—Good used extractor and equipment. Donovan Carpenter, Malcom, Iowa.

EXCHANGE—80 acres improved ten miles south Kansas City, Mo., for bees and equipment. Invite correspondence. C. McDaniel, Kenneth, Kans.

SUPPLIES

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

MAKE queen introduction sure. One Safin cage by mail, 25c; five for \$1.00. Allen Latham, Norwichtown, Conn.

MISCELLANEOUS

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, \$2.55 (10/6). The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

PLANS FOR POULTRY HOUSES—150 illustrations. Secret of getting winter eggs. You need this book. Write for free offer and sample copy of Inland Poultry Journal, 51 Cord Bldg., Indianapolis, Ind.

MARBLEBOARD BINDER—For back copies of the American Bee Journal. Will hold two years. Keeps your magazines in shape for ready reference. Price only 75c, postpaid. American Bee Journal, Hamilton, Ill.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list. American Bee Journal, Hamilton, Ill.

VITEX, "Negundo Incisa." The only nectar producing vitex listed by the Bureau of Foreign Plant Introduction. 24- to 36-inch trees, 50c, prepaid. Joe Stallsmith, Galena, Kansas.

HONEY LABELS and printing. Catalog and samples free. Correspondence solicited. Traders Printing Company, Springfield, Mo.

BEST BEE HUNTING OUTFIT—Grover, Bristol, Vt.

CLOSING OUT—Toulouse Geese, Muscovy Ducks, Pearl Guineas, Barred Rocks. Joseph Hoyt, Beaver Dam, Wis.

LISTEN—Why worry about the honeyflow? Plant Vitex (Negundo Incisa). They bloom when all other flowers are dead from drought. My large supply this season enables me to sell at greatly reduced prices. Literature and prices on request. Charles Mottet, Webb City, Mo.

Interesting the Man Behind the Counter

(Continued from page 365)

4. Cocktails and Fruit Beverages.

All drinks made from fruit juices are greatly improved when sweetened with honey. A certain smoothness and deliciousness is added to the drink that cannot be obtained without honey.

The letter closed with a short sentence stating that if they would educate their customers to use honey they would see their profits grow.

The letter was sent out to all our important customers, with a personal letter to the merchandising managers suggesting that they pass this information on to their store managers.

We were flattered by the results. Of course, we were enthusiastic about the idea, but we also know what usually happens to a circular letter. In this case, however, with one or two exceptions, the letter was used and in most cases sent out to each store manager without change. One of the largest and easily one of the most progressive of the chains sent it out as one of their official bulletins.

This, then, is sufficient evidence that the great grocery industry can be enlisted to the support of honey. It seems to me that practically all the effort of we honey folks has been directed toward the education of the consumer, and it is right that it should have been. There is no question in my mind that we have increased consumption in this country, for, although we have had a greatly reduced export market in recent years, we have been cleaning up our domestic crops with regularity, carrying practically none from one season to the next.

However, a most important cog in the wheel is the man behind the grocery counter, because he has access to practically every housewife in America, and when we have his support by educating him to associate the old idea of no profit in sugar with good profit in honey we will have made profits for ourselves.

Honey Plants of Iowa

At last the monumental work on "Honey Plants of Iowa" has been published by the State Geological Survey. The work is by the late Dr. L. H. Pammel and Charlotte M. King, assisted by Ada Hayden, J. N. Martin, Frank P. Sipe, William S. Cook, Edna C. Pammel, Clarissa Clark, L. E. Yocum, L. A. Kenoyer, O. W. Park, Charles A. Hoffman, R. I. Cratty and C. C. Lounsberry.

No such work has ever been undertaken with the honey plants, and it is probable that no similar bulletin will appear in the next fifty years. The book is cloth bound and contains 1192 pages, with hundreds of illustrations.

The book is not prepared along popular lines, but is a detailed study of the botany of an important region as it affects the bees. There is a color plate of the New England aster for a frontispiece.

The plants are considered as to distribution, season of bloom, visits of bees, nectar secretion and yield of nectar or pollen. There are special chapters on soils and honey plants of Iowa, weather, and honey production, pollination of plants, data on honey yields, pollen grains of

honey plants and numerous other subjects.

This publication will be invaluable to every serious student of the honey plants and very useful to beekeepers of the state of Iowa and surrounding territory with similar conditions. It will not serve the same purpose as the books on honey plants already published, since its field is restricted to a single state and it is prepared along very different lines. Since it considers the entire flora and does not in most cases explain the relative importance of the various plants, it may be somewhat confusing to the casual reader.

It is unfortunate that Dr. Pammel did not live to see this great work published after spending so many years in its preparation. Those interested in securing copies should address the State Geological Survey at Des Moines, Iowa, for information as to how it may be secured.

F. C. P.

Feeding Bees in 1820

"The Universal Receipt Book," published in 1820, contains these directions for feeding bees: "Such stocks as are intended to be kept through the winter should weigh twenty pounds or upwards at the end of September; but casts and late swarms seldom attain this weight, unless two or more should have been united. The composition for feeding consists of moist sugar and new beer, the proportion of one pound of sugar to a pint of beer, simmered to the consistency of treacle; to be inserted into the hives, by means of small troughs, at night, and removed the next morning early. Should a hive be very poor and weak, it is better to feed in larger quantities each time." What would Volstead say of this?

S. F. Haxton, Pennsylvania.

A New Idea in Disposing of Honey

B. C. Hall, of Manchester, Iowa, sent an elderly lady a cake of honey, and here is what he got back:

"Thanks for the sweet bouquet you sent to me.

It was the work, no doubt, of many a bee.

Each six-sided cell so full of sweet Makes me think you are a friend that's hard to beat.

The empty frame I will hang on the wall

And send it back to refill next fall."

Mr. Hall says: "I have made it a custom for years to send my sick friends a cake of honey, and in several instances it has made honey users of them. But this was the best 'thank you' I ever did get back."



"HOME COMFORT"
for Best Quality — Lowest Prices

The Home Comfort Company specializes in the manufacture of the **best** in Beekeepers' Supplies. Hive bodies, supers, Hoffman frames — everything the successful beekeeper needs to insure highest profit is listed in the Home Comfort catalog — at the lowest direct-from-manufacturer prices.

**Get Our Special Prices on
Honey Containers**

If you want best quality, lowest prices and prompt service on your orders, write for a copy of the Home Comfort catalog today — and send your orders to

The Home Comfort Company
881-885 Newcomb St. St. Paul, Minn.

40c each Knight's Dependable Queens

50c each Line Bred Three-Banded Leather Colored Italians

They are extra large, producing large bees. They clean up European foulbrood. They are the best honey gatherers and the hardiest strain on earth. Gentle and prolific. They stand the northern winters better. Have numerous letters to this effect. Continuous repeat orders every two years for three, four and five hundred queens from the largest honey producers shows where the good queens are reared

PRICES

Select—One to nine, 50c each; ten to forty-nine, 45c each; fifty and more, 40c each.

Shipments by return mail, or I will notify when to expect queens. All queens sent in large six-hole cages unless the three-hole size specified, and are guaranteed mated pure. No charge for clipping. No disease. Health certificate. Safe arrival and satisfaction guaranteed.

Jasper Knight
Hayneville, Ala.

HERE YOU ARE!

Quality Bred Italian Bees and Queens. Special selected stock for the beekeeper who cares. Our queens are bred from special selected mothers, the best stock obtainable, regardless of cost. They are noted as great honey gatherers, very gentle, hardy, and for their pleasing color. Hence the strong demand for our bees and queens. Ask any of our customers. Every one a queen and a good one—no culls. Return mail service. Satisfaction or money back.

Untested Italian queens, 45c each;
ten, \$4.25; one hundred, \$40.00

2-lb. pkgs. Italian bees with queens, \$2.00 each
3-lb. pkgs. Italian bees with queens, \$2.50 each

Lewis Beeware and Dadant's Foundation
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York Bee Company, Jesup, Ga.

(The Home of Quality Products)

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Our 1931 Honey Container
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